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ABSTRACT

Educational linkage is a system for sharing facts, ideas, values, and skills related to educational work. An extensive survey was made of educational linkage programs, and an evaluation procedure for these programs was designed. Over 40 linkage models were classified as to level of sponsorship and/or service, institutional setting, services provided, focus of service, interaction with client, initiative for undertaking services and evaluated as to simplicity and applicability. To obtain cost factors, 24 kinds of linkage systems were grouped according to retrieval services, publication services, media services, and interpersonal services. An analysis of 1,294 responses to a questionnaire was made to obtain projections for changes in knowledge, attitudes and behavior. Recommendations include: (1) creation of a network of linkage personnel, (2) correlation of linkage services with computer information retrieval, (3) maintenance of standardized unit-cost service records, (4) use of expertise to create new services and project future utilization. There are two appendixes and a 17 page bibliography. (NR)

COMMUNICATION FOR CHANGE IN EDUCATION:

Educational Linkage Programs in the 1970's

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ABSTRACT

In the past ten years, roughly since the passage of the landmark Elementary and Secondary Education Act, increasing numbers of educational linkage programs have appeared in all states of the union and at all levels of education. Generally, the purpose of these linkage programs is to improve the quality of learning experiences for students by raising teacher competences, by informing teachers and administrators of current research findings, by arranging demonstrations and trials of promising new practices, by providing technical assistance for program changes, etc.

Linkage services are being provided by state and local information centers, teacher centers, instructional materials centers, school study councils, professional associations, technical assistance programs, college and university education libraries, educational broadcasting for educators, and diverse other facilities and programs.

Under a contract from the National Institute of Education, the Institute for Communication Research, Stanford University, conducted a survey of educational linkage programs and designed an evaluation procedure that can be used for policy planning by such programs and by NIE. Major emphases of the evaluation procedure are simplicity and applicability to a wide range of linkage programs, all of which differ in their systems of recording services and costs.

The project began with an taxonomization of linkage programs along six dimensions: (1) level of sponsorship and/or service; (2) institutional base or setting; (3) service(s) provided; (4) focus of services; (5) interfaces with clients; and (6) initiative for undertaking services. More than 40 linkage models were classified within the six dimensions. A simpler taxonomy then evolved closer to the terminology that linkage programs apply to themselves.

Explication of linkage services and linkage costs followed in the second phase of the project. Twenty-four kinds of linkage services were grouped under the headings of: (1) retrieval services; (2) publication services; (3) media services; and (4) human (interpersonal) services. Linkage cost analyses focused on the attribution of direct and indirect costs of labor, materials, etc. to each linkage service.

Diverse linkage programs were site-visited to determine the feasibility of service/cost measurement. It was found, in general, that the recording systems of these programs cannot be disaggregated into service/cost data at the level of individual services (e.g., technical assistance consultations). However, the site-visited

programs provided useful information on the categories of services and costs that would be compatible with future disaggregations of their records.

In the third phase of the project, linkage client outcomes were explicated along the dimensions of knowledge, attitude, and behavior changes. Although the overall role of linkage programs in effecting such changes would require case-history analysis of individual cases -- a level of detail that this project could not encompass -- a mail questionnaire was developed that allowed clients to report various linkage outcomes as they perceived them.

The client mailing lists of eleven linkage programs were used to field test the "client reaction questionnaire;" 1294 usable responses were analyzed. In general, although the reported use of most linkage services was slight, systematic relationships were found between kinds of services used and kinds of outcomes reported. Professional demography of clients (e.g., teachers vs. administrators, district-level personnel vs. state-level personnel) was also systematically related to both services and outcomes.

A series of recommendations are made for the follow-on development and application of this "linkage evaluation design."

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Advisory and Learning Exchange
Washington, D.C.

American Educational Research Association
Washington, D.C.

Bay Area Learning Center
Oakland, California

Center on Evaluation Development
and Research
Phi Delta Kappa
Bloomington, Indiana

Project COMMUNICATE
State Department of Education
Topeka, Kansas

Education Information Center
State Department of Education
Providence, Rhode Island

Education Library
Indiana University
Bloomington, Indiana

ERIC "Central"
National Institute of Education
Washington, D.C.

ERIC Clearinghouse on Exceptional Children
Reston, Virginia

ERIC Clearinghouse on Information Resources
Stanford, California

ERIC Clearinghouse on Teacher Education
Washington, D.C.

Far West Laboratory for Educational Research
and Development
San Francisco, California

Project INFORMS
State Department of Public Instruction
Des Moines, Iowa

Instructional Materials Center
Sunnyvale Public Schools
Sunnyvale, California

Kansas State Telenetwork
Kansas State University
Manhattan, Kansas

Kentucky Educational Television
Lexington, Kentucky

Network of Innovative Schools
Merrimac, Massachusetts

Northwest Regional Educational Laboratory
Portland, Oregon

Research for Better Schools
Philadelphia, Pennsylvania

Research Coordinating Unit
State Department of Education
Knoxville, Tennessee

Research and Information Services for
Education
King of Prussia, Pennsylvania

San Mateo Educational Resources Center
San Mateo, California

Social Studies Development Center
Indiana University
Bloomington, Indiana

Special Education IMC/RMC Network
Arlington, Virginia

Teachers' Active Learning Center
San Francisco, California

Workshop Center for Open Education
City College
New York, New York

CONTENTS

1. BACKGROUND

In 1969 Dr. James E. Allen Jr., as Commissioner of Education, stated that the first goal of the U.S.Office of Education ought to be to "develop a nationwide strategy for maintaining a continuous process of improvement and relevance in American education." He called for "a systematic plan for linking the processes of change -- educational research, development, demonstration, evaluation, and dissemination."

In 1971 Dr. Sidney P. Marland Jr., then Commissioner of Education, stated that "We are constructing a nationwide educational communications network to disseminate proven new practice in order to move the art of education from its present condition to one of the increased quality we demand of ourselves. We must proceed more swiftly to implement the products of research without stopping to redefine every goal and every process at every crossroad in the country."

These statements date from a period of major dissemination planning in the U.S. Office of Education and subsequently the National Institute of Education. When the present "Linkage Evaluation Design Project" was begun in 1973, a large number of educational dissemination programs were already operating under federal, state, and local sponsorship. These programs differ considerably from each other in the services they provide, in the categories of educators they define as their clienteles, in their institutional settings and resources, in their advocacy postures, etc.

Although they were established to perform different dissemination, demonstration, technical assistance, staff development, etc. functions, collectively these programs constitute a natural field experiment in educational linkage. Our major task in the "Linkage Evaluation Design Project" was to explicate the cost, service, and outcome variables that help to identify the attributes of programs that may best perform each linkage function.

ANTECEDENTS OF EDUCATIONAL LINKAGE

Educational linkage systems came into existence in response to pressure both "upstream" and "downstream" in the flow of educational development -- that is, pressure emanating from researchers/developers, from their sponsors, and from educational practitioners. Researchers/developers were the first group served by federal educational linkage systems; they were both source and destination of information that flowed through ERIC, the federal information system for education, when it was first operational in 1965.

Significant events in educational linkage long preceded the establishment of ERIC, however. Educators had taken the problem into the councils of their professional associations and into the boards of their districts. Several durable linkage strategies emerged.

Year by year the conventions of professional associations (e.g., NEA, ASCD, AERA) have become more substantive and change-oriented. At the same time, professional association journals have evolved to provide a full spectrum of information on research and development and to reach diverse practitioner audiences.

In the school districts, efforts to test and install new practices led to a desire for broader resources and experience. Districts began to join together in consortia called "school study councils." Paul Mort, a tireless educational reformer, founded the first formal school study council in 1942 around his home base at Teachers College, Columbia. The original 28-district Metropolitan School Study Council remains an active organization today.

According to John W. Kohl of the National School Development Council, there are now 81 school study councils, ranging from one nationwide consortium (the Associated Public School System) to many geographically restricted consortia (e.g., the Western New York School Study Council).

One of the most notable facts about educational linkage is its pluralism. In addition to professional associations and school study councils, early linkage activities can be traced to schools of education (apart from participation in councils), commercial publishers, foundation programs, state departments of education, etc.

The federal government's role in educational linkage since 1965 has been that of innovator, stimulator, and coordinator. Dissemination policies of the U.S. Office of Education and the National Intitute of Education have shifted away from creating new programs, such as ERIC, and now emphasize the coordination of existing linkage programs, developing solutions as needed for problems of underlap and overlap.

Federal involvement in educational linkage followed, after a lag, the beginnings of large-scale federal support for educational R&D. No dissemination program accompanied the Cooperative Research Act of 1954, and as a consequence the early products of "Coop Research" were archived rather than disseminated to the field. The first educational research authorization to contain a dissemination clause was the National Defense Education Act of 1958. This first "post-Sputnik" act authorized the Commissioner of Education to "disseminate information concerning new educational media, including results of research and experimentation ..., to state or local educational agencies for use in their public elementary and secondary schools."

1965-1970: THE OFFICE OF EDUCATION MOUNTS A "PASSIVE" LINKAGE SYSTEM

Federal appropriations for educational change climbed from almost nothing in 1956 to more than 100 million in 1966, in the wake of "Great Society" and "War on Poverty" legislation. It was clear that a more systematic federal plan for linkage to the field was needed to supplant episodic dissemination efforts tied to acts like NDEA. After an examination of information systems used in various fields of science and technology, OE launched ERIC, which was first designated Educational Research Information Center and was renamed the Educational Resources Information Center.

ERIC had actually been conceived in the early 1960's under NDEA dissemination funding by information scientists at Western Reserve University. If it bore a strong resemblance to physics and chemistry information systems, the answer lay in the limited range of information system models then available. Principles that are now well understood, such as differences in information systems for researchers and linkage systems for practitioners, were hammered out in the late 1960's at the expense of information systems in diverse fields that were failing in their missions and had to be reconceptualized.

The 10-year-old concept of ERIC as a network of decentralized processing centers or "clearinghouses" has continued to be valid insofar as the important functions of acquisition, processing, and archiving are concerned. However, it was first thought that educators, researchers, and policymakers would use ERIC directly, searching out relevant documents through its bibliographies and ordering microfiche or "hardcopy" from the ERIC Document Reproduction Service. Some users went through these steps, but others ignored ERIC simply because the effort of using it exceeded the benefit of having documents of uncertain generality and authoritativeness.

ERIC mastered the problems of rescuing educational reports from oblivion, bringing them under bibliographic control (i.e., making them findable), and providing low-cost reproductions to any researcher, educator, policymaker, or citizen who wanted them. In direct linkage, however, ERIC itself was rescued by OE's PREP program, initiated at the close of the 1960's. PREP, "Putting Research Into Educational Practice," was a series of authoritative reports on topics of current interest among educators. PREP reports were commissioned from experts in each topic area, edited to relatively high standards, then published at low cost by the Government Printing Office. They were distributed primarily to state departments of education, with the suggestion that the states republish freely, under their own banners if desired.

Data from field studies showed that PREP reports were reaching much wider audiences than other ERIC products. Certainly far more educators read PREP than conducted ERIC searches.

PREP reports were only the vanguard of a series of user-oriented publications. Booklets on model programs (e.g., reading, compensatory education), an audiovisual "educational products minikit," and catalogs like ALERT ("Alternatives for Learning through Educational Research and Technology") were created under ERIC and other auspices to apprise educators of the most promising programatic outcomes of educational R&D. "Repackaging the educational knowledge base" moved from the status of concept to successful practice in just a few years.

1970-1975: THE OFFICE OF EDUCATION AND THE NATIONAL INSTITUTE OF EDUCATION MOUNT "ACTIVE" LINKAGE SYSTEMS

Yet to be solved, however, was the problem of bringing ERIC knowledge resources to educators who were unfamiliar even with PREP, together with the corollary problem of providing digested information on topics not yet covered by PREP (at any moment, this would be the majority of all topics in education). One answer to both problems seemed to lie in the extension model used by the U.S. Department of Agriculture. The intermediary role of "county agents" is well-understood and appreciated throughout rural America.

Accordingly, awards were made by OE-NIE to state departments of education -- initially Oregon, South Carolina, and Utah -- to employ and train "educational extension agents" who then served as intermediaries in specific districts. Backing up the extension agents were central retrieval facilities in each state, where documents were supplied in response to questions from the districts.

Although the effectiveness of the extension model was demonstrated in the three-state trial (Sieber, 1972), differences in the "infra-structure" of agriculture and education have called for adaptation of the model. Whereas the agricultural extension agent serves individual farmers and agribusiness managers who can adopt or reject new practices as they see fit, the educational extension agent serves teachers and administrators who are responsible to committees, boards, and amorphous interest groups.

Favorable evaluation of the three-state trial of educational extension agents justified extending the program to other states, and new rounds of NIE awards have followed. Although a fairly uniform application of the program in each state was envisioned by OE-NIE, in fact there are nearly as many variations of the extension model as there are participating states. What has resulted is a natural field experiment, from which one of the spontaneous variations may emerge as more effective for particular linkage purposes than the others.

RECENT NIE AWARDS TO THE STATES

Federal commitment to the concept of "active" educational linkage is demonstrated in 15 NIE awards to state departments of education,

announced in June of 1975. In the following list, the work statements reflect pluralism in program development, relative to state and local needs.

ALASKA ($96,000). "Design and test a statewide system which identifies user information needs, employs various forms of technology for materials/information distribution, and functionally integrates all instructional resources available for state use."

CONNECTICUT ($85,000). "Strengthen program development process at local level by establishing a central information storage-retrieval unit and linkage to LEA's via cooperation of the SEA and six area educational centers."

DELAWARE ($100,000). "Apply information and manpower resources to resolve local instructional problems through coordination of existing information resources, establishment of an Information Search and Retrieval Unit, and application of field agent linkers."

IDAHO ($25,000). "Develop state plan of dissemination activities, including diffusion of knowledge available in ERIC to be used by LEA's, through services of identified and trained district contacts, preferably librarians, of selected target districts."

ILLINOIS ($110,000). "Organize a dissemination system in selected target districts with trained extension agents linking SEA information base and local clients. Program is based on Havelock's view of change as a linking process."

KANSAS ($26,000). "Expand computer search capability (now limited to SEA information center) to eight regional centers, increasing number of persons with logic writing skills. Anticipate multiplying clientele having access to computerized information retrieval."

KENTUCKY ($75,000). "Establish SEA information request clearinghouse with access to agency resource centers and state library system. Link clearinghouse and LEA's via teams in intermediate regional units. Include information product development and adoption grants program."

MISSOURI ($25,000). "Develop SEA plan for comprehensive information dissemination system by (among other activities) identifying user needs, assessing present dissemination capabilities and innovations/practices characteristics, and upgrading computer software."

MONTANA ($110,000). "Identify information resource needs, develop plans to improve resource base, train selected agency

and field staff as information extension agents, develop goal-based planning model as context for curricular examination and improvement. Pilot and assess planning and information-sharing model in selected region."

NEBRASKA ($30,000). "Develop plan for identifying and dealing with educational information needs of the SEA staff, educators and the public. As part of the process to develop plan, organize and pilot model for use in identifying and prioritizing educational needs."

NEW YORK ($100,000). "Determine if SEA can design ERIC compatible, state-specific data bases for use as complement to ERIC, incorporating locally developed curriculum, state program and human resource information. Develop training package to instruct users in use of ERIC and new state data base."

NORTH CAROLINA ($48,000). "Plan information system utilizing SEA and regional service centers through full-time dissemination planner leading task force; stimulate use of new knowledge/practices among LEA's; provide project feedback to state/federal agencies."

SOUTH CAROLINA ($120,000). "Expand current operating capabilities in scope, number of audiences served and quantity and quality of services offered by SEA to target audiences. Expect ultimate establishment of individual LEA mechanisms to expand and continue network."

TENNESSEE ($60,000). "Provide for dissemination practices which are directed beyond the awareness and interest levels through development of plan utilizing a dissemination director and extension agents -- one agent from each of eight districts in the state."

TEXAS ($106,000). "Increase utilization of knowledge from research and development and proven programs-practices, working through the system of linkers already in education service centers. Expanded program will serve approximately half of 2.8 million pupils."

RELATED DEVELOPMENTS

Earlier federal emphasis on the "awareness" and "interest" phases of the diffusion/adoption process has, if anything, drawn attention to the practitioner's difficulty in securing assistance during the evaluation, trial, implementation, and maintenance phases. That is, as knowledge of alternative practices spreads, the practitioner may feel greater rather than less frustration in seeking practical guidance as

alternatives are weighed, tried, implemented, and incorporated in local planning and budgeting. To meet these latter needs, a variety of non-federal linkage services have sprung into existence at all levels.

The need for evaluated information led to the establishment, for example, of the Educational Products Information Exchange, with its consumer orientation and its Nader-like suspicion of publishers' claims. Practitioners' needs for evaluation competence have led to "evaluation workshops" under diverse auspices, from professional association convention presessions to university summer institutes and commercially sponsored seminars.

Trial and implementation guidance is now forthcoming from a variety of technical assistance services, ranging from revitalized forms of SEA consulting to consortia of regional laboratory and R&D center product developers. And, increasingly, competent technical assistance is now available from local instructional materials centers and "teacher centers."

"Teacher centers" are perhaps the single most provocative linkage innovation of the past decade. Located both inside and outside the local educational structure (with interesting differences in the two models), teacher centers overcome a number of obstacles to change. For example, they stress content rather than form, so that teachers can capture the advantages of new approaches without waiting for boards to approve expensive commercial packages. The typical teacher center is an ill-furnished large room where teachers find examples of other teachers' clever ideas, read manuals with a do-it-yourself emphasis, make personal contact with the outside world of product development and evaluation research, and learn from other teachers that the benefits of individualization and open education are worth the hard work of introducing them.

The difficult process of incorporating change into local educational planning and budgeting, still much neglected, is an objective of effort among local school study councils. A large number of councils, together with their parent National School Development Council, the General Learning Corporation, and the Center for the Advanced Study of Educational Administration, are implementing a form of PPBS in local districts. PPBS, to the extent that its analytic framework replaces seat-of-the-pants decision making, can bring new practices into a district through a multi-year evaluation-trial-implementation-incorporation process.

Forms of linkage differ in their geographical distribution across the United States. Table 1.1 shows the state-by-state distribution of eight forms of linkage, relative to size of instructional staff in each state.

TABLE 1.1 Linkage programs by state, relative to instructional staff in elementary and secondary education: 1970 and later. (See key at end of table)

	Staff	GIC	SIC	TC	SSC	EL	EC	RL	RDC
Total	2,308,000	146	53	208	70	339	16	9	13
Alabama	36,000		2		1	7			
Alaska	4,000	1				1			
Arizona	22,000	1	1		2	2			
Arkansas	21,000		1		1	6			
California	213,000	13	2	9	2	25	2	2	4
Colorado	27,000	3	2	8	1	6	1		1
Connecticut	39,000	1		9	1	5			
Delaware	7,000			1	1	1			
District of Columbia	8,000	4	3	7	1	4	2		
Florida	72,000	4	1	4	2	8			
Georgia	46,000	3		8		9			
Hawaii	9,000					1			
Idaho	8,000	1		3	1	2			
Illinois	127,000	4	1	5	4	15	3		
Indiana	57,000	4			6	6			
Iowa	36,000	8				9			
Kansas	27,000	2	1	1		7			
Kentucky	34,000	1	3	2		6			
Lousiana	47,000					13			
Maine	13,000	2		1		3			
Maryland	47,000	3		4	1	3			1

(continued)

TABLE 1.1 (continued) Linkage programs by state, relative to instructional staff in elementary and secodnary education: 1970 and later. (See key at end of table)

	Staff	GIC	SIC	TC	SSC	EL	EC	RL	RDC
Massachusetts	69,000	7	2	12	2	9			
Michigan	100,000	6	1	7	2	9	1		
Minnesota	49,000	2	1	4	6	10			
Mississippi	26,000		1	1		5			
Missouri	50,000		1	2	1	11		2	
Montana	9,000	1				2			
Nebraska	19,000	3	2	2		8			
Nevada	6,000	1		2		2			
New Hampshire	10,000		1	3		1			
New Jersey	90,000	2	1	3	4	11	1		
New Mexico	13,000		2	3	1	5	1		
New York	208,000	15	3	19	14	31	1		1
North Carolina	51,000	3	2	4		14		1	1
North Dakota	8,000	3		6	1	1			
Ohio	115,000	9		11	3	22	1		1
Oklahoma	28,000		1	1	1	8			
Oregon	23,000	3	1	4	1	5	1	1	1
Pennsylvania	128,000	8	3	7	4	28		1	1
Rhode Island	11,000	1		1		3			
South Carolina	29,000		1			6			
South Dakota	9,000	1		5		4			
Tennessee	38,000	1	3	1	1	13			
Texas	133,000	11	2	21	1	18		1	1

(continued)

TABLE 1.1 (continued) Linkage programs by state, relative to instructional staff in elementary and secodnary education: 1970 and later. (See key at end of table)

	Staff	GIC	SIC	TC	SSC	EL	EC	RL	RDC
Utah	12,000	3	3	3		3			
Vermont	7,000			5		1			
Virginia	53,000	5			1	6	2		
Washington	35,000		1	4	1	8			
West Virginia	18,000	3	1	9		3		1	
Wisconsin	56,000	3	2	6	1	12			1
Wyoming	5,000		1		1	1			

KEY AND SOURCES:

Staff = Instructional staff in elementary and secondary education, 1972. Office of Education (1974)

GIC = General educational information centers. Wanger (1971)

SIC = Special educational information centers (chiefly on vocational education and education of the handicapped). Wanger (1971)

TC = Teacher centers. Syracuse University Teacher Center Project (unpublished data, 1973)

SSC = School study councils. National School Development Council (unpublished data, 1973)

EL = Education libraries of teacher-training institutions. COLLEGE BLUE BOOK (1969)

EC = ERIC clearinghouses. National Institute of Education (unpublished data, 1974)

RL = Regional laboratories. National Institute of Education (unpublished data, 1974)

RDC = Research and development centers; educational policy research centers. National Institute of Education (unpublished data, 1974)

Available updates have been used to adjust State totals.

Although not all forms of linkage are mentioned above, it should be clear that educators and others are extensively involved in linkage activities that the federal government seeks to assess and selectively encourage. Although it is understandably reluctant to take over all diffusion/adoption functions because of cost and the advocacy problem, the federal government is discovering a wide variety of national, state, regional, and local programs that can do the job with minimal training, coordination, resource back-up, etc.

As the variety of forms stretches our concept of linkage almost to the breaking point, it is clear that no simple paradigm for the analysis of their costs and the evaluation of their effectiveness will suffice. Some paradigm is needed, however, to encourage rigorous thinking about linkage alternatives. The search for a paradigm raises a number of conceptual issues:

CONCEPTUAL ISSUES

WHAT IS LINKAGE? Although all linkage is in some sense communication (even, for example, the viewing of exhibits and demonstrations), not all communication among educators should be defined as linkage. One linkage model we examined and then omitted is NEA's UNISERV, in which the local agents function more as labor union shop stewards than as "linkers" of new educational practices.

The inclusion of teacher center models moves this project from the mainstream of formal and self-identified linkage activities. A first-rate teacher center addresses many teacher needs beyond linkage.

We define linkage in this project as a set of communication events that: (1) bring new educational practices, especially those resulting from systematic research and development, to the attention of educators; (2) provide educators with technical assistance in the evaluation, trial, adoption, and maintenance of new practices; (3) provide educators with new competences (required by new practices) through continuing education; and (4) provide a feedback loop from educators back to researchers, developers, and policymakers. Excluded from the definition is pre-service training except when students become part of the clientele of a linkage program outside of their student role.

WHAT IS THE ROLE OF LINKAGE IN EDUCATIONAL CHANGE? The investigation of linkage client "outcomes," as distinguished from linkage service "outputs," should be based on plausible and theoretically derived relationships between linkage events and educational change. There is some merit in basing the investigation on general theory rather than idiosyncratic theory, and accordingly we draw upon the revised Rogers' theory of the diffusion of innovations (THE COMMUNICATION OF INNOVATIONS, 1971), which embodies or is the convergence of rural sociology, urban sociology, the sociology of organizations, the social psychology of persuasion and decision-making processes, and mass communication research.

Main elements of this well-known theory include: (1) a time-based adoption process incorporating a knowledge function, a persuasion function, a decision function, and a confirmation function; (2) attributes of innovations that facilitate or impede their diffusion; (3) attributes of innovators, early adopters, and later adopters; (4) the concept of opinion leadership and a distinction between the innovator and opinion leader roles; (5) multi-step flow of informational and persuasive communication; (6) attributes of communication channels that mediate their effectiveness for knowledge, persuasion, decision, and confirmation; (7) a taxonomy of decisions ranging from private individual decisions to public collective decisions; (8) organizational factors that affect decision making; and (9) the later consequences of adoption decisions.

In Rogers' theory, linkage (some communication event) intervenes to move individuals and groups from one phase of the adoption process to the next, as well as to consolidate the effects of previous phases. The deceptively simple role of linkage in educational change, then, is to inform educators of alternatives, to assist them in assessing current practice against alternatives, to persuade them of the superiority either of current practice or some alternative, to equip them for decision making, to reinforce a decision once it is made, and to guide a locally new practice from experimental to operational status.

Linkage further assists change by describing to researchers, developers, and policymakers the conditions of local education in which new practices must prove themselves and survive.

WHAT IS A LINKAGE PROGRAM? There are many excellent linkage ideas that have not been investigated in this project because they are not developed as integral linkage programs. One example is the audio cassette "newstape" that educators might obtain as easily as the daily newspaper and that would summarize developments in educational practice in a convenient and pleasant format. The newstape would be played at home, in the car, and in the faculty lounge. The tape would have a lower threshold of acceptance than print materials, and it might capture the vigorous give-and-take of interpersonal communication.

However, the newstape is not a linkage program in itself. To become a program, it must be placed in a context that includes the resources it draws upon, the procedure and schedule of its production, and the system of its distribution. A richer context for evaluating it would include its institutional base and sponsorship, its provision for feedback, and its relationship to follow-through linkage activities (i.e., beyond the knowledge function).

Another excellent linkage idea is the "lighthouse" or demonstration site where educators can visit to observe new practices, obtain candid assessments, and establish contacts for their own trial adoption. This

idea has been incorporated to some extent in linkage programs like the IPI Consortium (Research for Better Schools, Pittsburgh R&D Center, and affiliated schools), but nowhere is it an integral program in itself.

Unfortunately, some of the most provocative future linkage programs will develop from ideas like these, yet they can't be evaluated at the idea stage.

WHAT IS APPROPRIATE BREADTH FOR LINKAGE PROGRAMS? If there is coordination among linkage programs such that knowledge-persuasion-decision-confirmation functions are served collectively by the linkage "system" rather than by individual programs, then programs can be encouraged to address limited functions powerfully rather than all functions weakly. Because of narrow conceptualizations of their objectives (e.g., "to inform," "to evaluate," "to assist"), few programs address the full range of functions now. Are programs to be commended for such specialization, or will future encouragement/support be contingent on broadly conceptualized objectives?

The technical efficiency of specialization must be contrasted with users' psychological inefficiency in relating to several programs for what users perceive to be unitary problems. Just as medicine is now entering a new era of comprehensive "family practice," linkage programs may serve their clients better if they are able to address broad objectives of educational change at the expense of technical efficiency.

At the same time we acknowledge the information science concept of a "transparent interface," by which a user is served by several specialized systems without realizing that he or she has been "switched." It is the transparency or the psychological efficiency of the relationship that matters, not the number of separate linkage programs that are switched into a given service episode.

WHAT ARE EFFECTIVE LINKAGE BASES? Linkage programs are currently based in government agencies at all levels, in professional associations, in universities, in private non-profit and for-profit organizations, and in various consortia. Whereas all bases may be equally effective in addressing the knowledge function, all may not be equally effective in addressing the persuasion, decision, and confirmation functions.

The answer to this question will be complex: bases that can mount efficient programs and cost-manage them may not be as acceptable to users as bases that mount loose and unaccountable programs. Anti-establishment teacher centers are prime examples of the latter, but every one of them has a devoted clientele.

Some convergence is to be expected as the efficient programs move toward user acceptability and the well-accepted programs move toward efficiency and accountability.

WHAT ARE EFFECTIVE LINKAGE SERVICES? We lack an analysis, from the user's point of view, of underlap and overlap in services provided by the linkage "system" as a whole. There is a natural tendency for linkage programs to gravitate toward services that can be performed well and away from services that are frustrating and unsatisfying. At the present time an excessive proportion of linkage programs specialize in information services only. For every program that can provide technical assistance at the critical junctures of trial and implementation, several programs provide information only and thus relate to clients in the early phases of the adoption process but not beyond.

Emphasis on information services is not wrong in itself, since field studies uncover large numbers of educators who are not regular users of such services. Adoption stages are cumulative, and educators cannot try practices they have never heard of. At some point in the future, however, as information deficits diminish, linkage programs should be encouraged to serve later diffusion/adoption phases.

Even now, because the country is heterogeneous in its educational demography, information services that are much needed in one site may be redundant in another. As will be discussed below, a provided service yields "output," but only in a context of need and appropriateness does it yield "outcome."

WHAT ARE EFFECTIVE LINKAGE FOCI? Linkage models have been identified that focus on specific subjects, specific products, specific audiences, or on "everything for everyone." Specific foci (e.g., in the "Research Coordinating Units") are a byproduct of categorical funding rather than careful policy analysis. To restrict the focus of future linkage programs may be an excellent idea; it may even be necessary if programs are to address broad knowledge-persuasion-decision-confirmation functions, since the "everything for everyone" focus may not be manageable at all levels and sites.

An important policy question for the future concerns product-specific linkage, exemplified now by regional laboratory consortia. Product-specific linkage appears to be wasteful to the extent that a linkage program is established for a single purpose, reaches a state of efficiency after months or years, and is then disestablished when the product reaches a criterion level of adoption or funding is discontinued.

Further diseconomies of product-specific linkage appear in the lab consortia and indeed led to the establishment of the consortia. Since it is not possible to maintain a product-specific "linker" close to all sites, much travel is involved in providing technical assistance via lab personnel. However, the authoritativeness of such assistance may offset its cost.

Questions of effective linkage focus need to be explicated above the level of "on the one hand ... on the other hand" debate.

WHAT ARE EFFECTIVE LINKAGE INTERFACES? Most current evaluation of educational linkage has focused on the interface question. The superiority of human over print interfaces is assumed, and attributes of an effective human interface are being investigated.

The interface question is broader than that, however. Print interfaces have been left at a primitive stage of development, then, in a self-fulfilling prophecy, judged to be ineffective. Since there are precedents in other fields (e.g., engineering, medicine) showing that well-designed print interfaces can provide technical assistance, we shouldn't consider the case of print interfaces closed.

There is the further question of media interfaces. Some lesser effectiveness vis-a-vis human interfaces can be tolerated, since media have the potential if not the present reality of achieving massive economies of scale. Anyone who has seen excellent films about new educational practices may agree that the problem with the media interface involves distribution rather than production. Film cartridges have greatly affected linkage in other fields (e.g., in medicine via the Medical Media Network, which is not a network but a system for distributing Super-8 cartridges to hospitals).

Advocates of community cablevision stress the importance of that new medium for professions like education and medicine, and accordingly the FCC has required cablers to set aside professional channels in new installations. In this or some other media development, the right delivery system for educational linkage will coincide with viable production and follow-through strategies, and at that moment the media interface will become extremely important.

HOW SHOULD LINKAGE "OUTCOMES" BE DEFINED, CONCEPTUALLY AND OPERATIONALLY? Acknowledging that whatever a linkage program provides is its "output," what definition of "outcomes" is appropriate in terms of measurability and causal inference? "Outcomes" of communication events are generally explicated along dimensions of knowledge, attitude, and behavior. Knowledge is the most measurable outcome, followed closely by attitude, which is followed distantly by behavior.

Compounding the measurement and inference problem surrounding (in particular) behavioral outcomes, it is also true that outcomes have different latencies, ranging from brief in the case of knowledge to indeterminately long in the case of behavior, not only because behavior has different inertial dynamics but also because situations that trigger specific behaviors may not occur frequently.

Certainly behavior change in the form of improved educational practice and increased professionalism in education is the penultimate

criterion of linkage effectiveness, with the ultimate criterion being student welfare. However, behavioral outcomes will not in this decade of evaluation research be measured or causally connected to everyone's satisfaction. Policymakers must decide if their political and other needs for behavioral outcomes are sufficiently compelling to risk sinking a program that may actually be achieving its objectives.

Real need for behavioral outcomes depends on the applicability of Rogers' diffusion/adoption theory to individual cases. If the theory holds, we can compute probabilities that educators whose knowledge and attitudes have been affected in a particular way by a linkage program will, over a given period of time, continue on to trial and adoption. To paraphrase Einstein, humans are not perverse, and a certain proportion of them will indeed try and adopt a certain proportion of innovations that they are well-informed about and excited about.

ON WHAT COMMON BASIS CAN STAFF SERVICES AND PRODUCTS BE EVALUATED? Several yardsticks are available for calibrating staff services (e.g., technical assistance) and products (e.g., information units). The yardsticks of cost and effort are fair but harsh, since staff services are an order of magnitude more costly and effortful than products, since economies of scale apply to the latter.

What is needed is a common metric of the linkage program's investment in each of its services vis-a-vis its other services and the services of other programs. It is easier to say that cost and effort are appropriate than to apportion cost units and effort units among the multiple outputs of a typical program (see Chapter 3).

HOW CAN THE FIXED COSTS OF A LINKAGE PROGRAM BE ATTRIBUTED TO ITS SERVICES AND PRODUCTS? The "books" of some linkage programs show large undifferentiated overhead and small budget lines for specific outputs. The problem is minimal in an information program, where units of activity are uniform and costable. An aggravated form of the problem appears in teacher centers, where services are performed in a free-flowing environment and where the ostensible output (what teachers have in their hands when they walk away) fails to reveal significant exchanges of ideas that have taken place.

Even after time-effort observations are made in some sites to break down the undifferentiated overhead, there will remain both intractable sites and intractable time-effort categories, both of which may require expert judgment as much as close observation.

2. TAXONOMY OF EDUCATIONAL LINKAGE PROGRAMS AND SERVICES

Linkage programs represent a number of independent traditions in educational renewal. There is no reason why they should combine in a single taxonomy. Still, for purposes of description and comparison, it is useful to analyze the similar and different elements of programs.

Our survey of linkage programs led initially to a six-fold taxonomy, of which the dimensions were:

1. LEVEL OF SPONSORSHIP AND/OR SERVICE

   National
   State
   Regional
   Local

2. INSTITUTIONAL BASE OR SETTING

   Government, Centralized
   Government, Decentralized
   Professional Association
   University
   Private, Non-Profit
   Private, For-Profit
   Consortium

3. SERVICE(S) PROVIDED

   Information
   Instructional Materials
   Technical Assistance
   Continuing Education

4. FOCUS OF SERVICES

   General
   Subject Specific
   Product Specific
   Audience Specific

5. INTERFACE(S) WITH CLIENTS

   Print
   Media
   Human

6. INITIATIVE FOR UNDERTAKING SERVICES

Client (Demand Services)
Staff (Scheduled Services)

This taxonomy was the basis for classifying more than 40 linkage models. A simpler taxonomy then evolved closer to the terminology that linkage programs apply to themselves. With one linkage program chosen casually to illustrate each type, the simpler taxonomy is:

1. INFORMATION PROGRAMS AND CENTERS

Federal, General Subject Matter (Educational Resources Information Center -- ERIC)

Federal, Focused Subject Matter (Special Education Instructional Materials Network -- SEIMC/RMC)

State, General Subject Matter (Project Communicate, Kansas State Department of Education)

State, Focused Subject Matter (Research Coordinating Unit, Tennessee State Department of Education)

Regional, General Subject Matter (Research Information Services for Education, Pennsylvania)

Proprietary Information Project, Focused Subject Matter (XEROX Curriculum Clearinghouse)

2. TEACHER CENTERS

State Consortium (Texas Teacher Center Project)

Regional Consortium (Bay Area Learning Centers, California)

University-Based Individual Center (Workshop Center for Open Education, City College, New York)

Independent Center (Advisory and Learning Exchange, Washington)

Residential Center (Teacher Center, Academy of the Sacred Heart, Greenwich, Conn.)

3. TECHNICAL ASSISTANCE PROGRAMS

Technical Assistance for Planning (Educational Planning Specialists of New Jersey Model Cities Program)

Consortium for Multi-Product Implementation (Northwest Laboratory/ Far West Laboratory/ Central Midwestern Laboratory/ Wisconsin R&D Center Consortium)

Consortium for Single-Product Implementation (Research for Better Schools/ Pittsburgh R&D Center IPI Consortium)

Single Program, Single Product Implementation (Indiana Social Studies Development Center)

4. PROFESSIONAL ASSOCIATION PROGRAMS

Retrieval Services (School Research Information Service, Phi Delta Kappa)

Information Collection and Synthesis (Educational Research Service, independent but co-sponsored by five professional associations)

Multi-Faceted Information Program (American Educational Research Association)

5. SCHOOL STUDY COUNCILS

Emphasis on Staff Development (Network of Innovative Schools, Massachusetts)

Emphasis on New Product Development (Educational Research and Development Council of the Twin Cities Metropolitan Area, Minnesota)

6. BROADCASTING FOR EDUCATORS

Information Services (KETS-ETV, Arkansas)

Brief Workshops (KET-ETV, Kentucky)

Longer Courses (WHA-ETN-SCA, Wisconsin)

7. PUBLISHING FOR EDUCATORS

Professional Books (Education Division, University of Chicago Press)

Professional Magazines (Learning Magazine)

8. COLLEGE AND UNIVERSITY EDUCATION LIBRARIES

   Emphasis on Search Services for Educators in Field (University of Indiana Education Library)

9. INSERVICE TRAINING

   College-Based (California State University at San Jose)

   District-Based (San Francisco Public Schools)

10. MISCELLANEOUS LINKAGE PROGRAMS

   District-Based Instructional Materials Center (Instructional Materials Center, Sunnyvale, California)

   Evaluated Product Information (Educational Products Information Exchange, New York)

   Proprietary Consulting and Research Services (Westinghouse Learning Corporation, New York)

   State Education Agency Consulting Services (Consultants, Utah State Department of Education)

   School Research Office (Dade County, Florida)

3. LINKAGE EVALUATION DESIGN

After observing the operation of a number of linkage programs, it seemed to us that the first-order evaluation question was, "What kinds of linkage services, provided at what cost, have what kinds of outcomes in the professional activity of linkage clients?" This question implies a three-factor evaluation model:

1. Linkage services, classified generally as retrieval services, publication services, media services, and human (interpersonal) services;

2. Costs of services, classified generally as variable labor costs, variable material costs, and fixed costs;

3. Client reactions to services, obtained via mail questionnaires, personal interviews, and other measures.

Because of the diversity of linkage programs, an evaluation design must be general in the definitions and classifications it suggests. A more specific design can be drafted for each type of linkage program, but at the expense of comparability across types of linkage programs. In any event, we feel that the amount of evaluation data that results from careful use of a general design will exceed the data that most linkage programs have previously collected for themselves.

EVALUATION PHILOSOPHY

To state the philosophy of evaluation that lies behind this design would require more space than the design itself. At the risk of being telegraphic, fundamental premises of the evaluation philosophy are listed below:

1. The ultimate criterion of the success of an educational intervention is the quality of student learning and, to some extent, student adjustment to post-school experiences. (There is unnecessary hubris in charging education with all life outcomes.)

2. Positive change in this criterion is a sign that "somebody's doing something right." However,

attribution of the change to a specific intervention is almost never possible in field settings because of what Donald T. Campbell calls "plausible rival hypotheses" arising from concurrent events that vary freely. It is often impossible to credit linkage interventions with improvement in student learning, because other factors, closer to the students, are concurrently changing.

3. Measurable positive changes in teacher competences, in instructional practices, etc., may be accepted as surrogates for improvement in students' learning experiences. Greater attribution of effect to the linkage intervention is balanced by lesser importance that can be attached to such surrogates.

4. In any event, the evolution of educational linkage programs is in an early phase, and formative evaluation will continue for some time to be more realistic and useful than summative evaluation. Accordingly, evaluation measures should emphasize process rather than outcome. Emphasis on process should stop just short of indeterminacy, in the sense that different processes can lead to nearly identical outputs, which in turn can lead to nearly identical outcomes. For example, one information center may conduct computer searches in response to queries; another information center may invest comparable resources in manual searches by staff who have become unusually familiar with the files being searched and can thus "compete" with the computer.

5. Many, perhaps most, internal processes of a linkage program lie beyond the pale of indeterminacy. Case studies and earlier evaluations attest both to the spontaneous variation of processes across linkage programs and to the indifference of outputs to such variations. In short, linkage programs that look different inside prove to conduct the same business outside. It is appropriate for a formative evaluation to avoid problems of process indeterminacy by focusing primarily on outputs, which are viewed as lying halfway between processes and outcomes on the effect continuum.

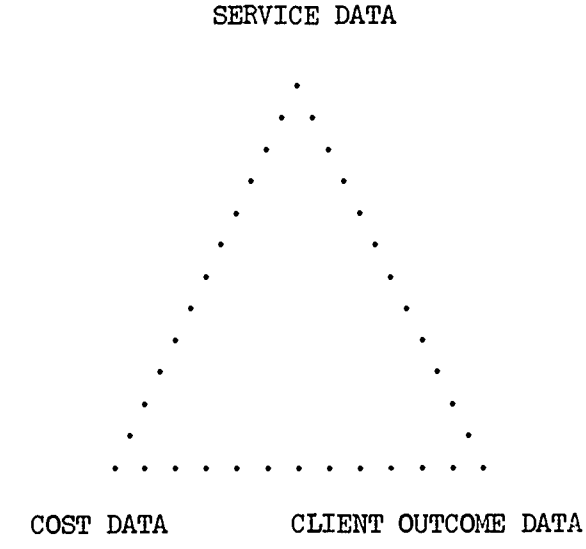
In another sense, the outputs of a linkage program are indeed the processes by which it conducts its business. A teacher center conducts its business by maintaining an "innovative practices workplace,"

by sponsoring workshops for teachers, etc. An information center answers queries, distributes bibliographies and reviews, etc. These end products of internal processes are integral to the external process of conducting linkage business.

Such is the philosophy or bias of the evaluation scheme described in this chapter. Although firm in its own focus, it does not preempt other points of view. According to specific needs and data gathering opportunities, measures of internal processes or of outcomes could be added to bracket the measures of outputs.

EVALUATION PROCEDURE

The evaluation scheme can be viewed as triadic:



Interrelationship of the three evaluation factors is reflected in the following procedure:

1. Linkage services are enumerated in 24 categories. Within each category, data concerning volume of service and target audience(s) are recorded.

2. Costs are attributed to each service. Variable labor costs, variable material costs, and fixed costs are broken out of the linkage program's overall budget by reference to records, by reconstruction, and by careful estimation.

3. Client reactions are obtained via mail questionnaires, personal interviews, and other measures. Clients acknowledge particular service transactions, classify and further describe the service in each case, and specify one or more outcomes (defined in terms of impact on the client's work) in each case.

4. Outcomes attributed to each service by clients are scaled:

   (Volume X Client Outcome)/Cost

5. Additional client reaction data that are not service-specific are analyzed for their value in the formative evaluation.

SERVICE DATA. Linkage services are grouped in four primary categories: retrieval, publication, media, and human (interpersonal). The 24 specific services within the four categories are also aggregative -- that is, a linkage program is likely to have provided several varieties or at least replications of each specific service. It is intended that service records can be utilized to complete detailed worksheets for each specific service. Column totals for each detailed worksheet are then transferred to one of 24 rows on a summary service sheet. In addition to analysis performed on each of the 24 rows, four column subtotals permit analysis in terms of the four primary categories.

The service categories are:

RETRIEVAL SERVICES

1. General (pre-packaged) bibliographies or lists
2. Individualized bibliographies or lists
3. General (pre-packaged) compilations of abstracts
4. Individualized compilations of abstracts
5. General (pre-packaged) selections of documents
6. Individualized selections of documents

PUBLICATION SERVICES

7. Brochures describing services
8. Newsletters, bulletins, or other serial publications

providing educational news and brief notes

9. Magazines, journals, or other serial publications providing substantial reports of research and practice

10. Papers (research reports, case studies, reviews, etc.) shorter than monograph length

11. Monographs or books

12. Instructional materials (published materials for classroom use)

MEDIA SERVICES

13. Films, slides, tapes, etc. for inservice training

14. Teleconferences or telephone classes for inservice training

15. Radio broadcasts for educators (news or inservice training)

16. Television broadcasts for educators (news or inservice training)

17. Instructional materials (films, slides, tapes, etc. for classroom use)

HUMAN SERVICES

18. Correspondence answering questions, providing guidance, referral, etc.

19. In-person question-answering, guidance, referral, etc.

20. Demonstrations of practices, skills, devices

21. Presentations at conventions or conferences

22. Classes, workshops, seminars

23. Group consultations or technical assistance

24. Individual consultations or technical assistance

As the detailed service worksheets are filled out, the following information is recorded for each instance (variety, replication):

1. The target audience is percentaged across the categories of: (a) teacher, (b) administrator, (c) government employee, (d) researcher/developer, (e) student, (f) general public, and (g) other. For example, a publication may have been intended primarily and equally for teachers and administrators, with anticipated incidental use by government employees and researchers/developers. Percentages reflecting these intentions might be 40% teachers, 40% administrators, 10% government employees, and 10% researchers/developers. Whenever empirical audience breakdowns are available, these should be substituted for target audience estimates. For example, workshop enrollment records will often show the position and level of each enrollee.

   Decision rules affecting the target audience categories are as follows:

   -- Non-classroom personnel are classified in the administrator category, since teachers so greatly outnumber the sum of other building-level and district-level personnel categories;

   -- Government employees are personnel above the level of the responsible operating system (usually the district); they may be employed in intermediate units, in the state government, or in the federal government;

   -- Only students in preservice programs are classified as students; educators engaged in inservice training are classified according to their employment category;

2. Volume of linkage activity represented by each variety or replication of service is computed as:

Number of Clients Reached (Enrolled, Involved)	X	Number of Contact Hours per Client

   Number of clients reached is obtained from records or estimated from equivalent experience. Number of contact hours per client may also be obtained from records in a few cases; more often it will be necessary to estimate contact hours as an average based upon the client's known direct contact (e.g., time spent within the linkage facility) plus the client's probable indirect contact (e.g., time spent reading materials away from the linkage facility).

3. Initiative is defined as deriving from the staff of the linkage program (as in the case of scheduled services like publications and workshops) or from clients (as in the case of demand services like retrieval queries and drop-in requests for assistance).

Some service categories are internally homogeneous and can be pre-aggregated by time periods. For example, question-answering services can be aggregated by the month, quarter, or longer period. Multiple issues of a periodical can be aggregated. By contrast, a major publication such as a book would presumably be reported by itself, as would a major (multiple day) workshop.

The time frame for service data is the linkage program's immediately prior fiscal year, unless there is a compelling reason to work within the present, unfinished fiscal year.

COST DATA. The first step in attributing costs to specific services is to categorize the overall budget of the linkage program according to distinctions customarily made in such budgets between direct and indirect costs, or operating costs and overhead, or variable costs and fixed costs. The second category in each case -- indirect costs, overhead, or fixed costs -- is assumed not to be attributable to specific services except as a proportionate allocation reflecting the direct costs, operating costs, or variable costs that are attributed to specific services.

The second step is the attribution of an amount of direct costs to each specific service, subcategorized by labor (including fringe benefits) and material. All facility costs not included in indirect costs are assigned to material to the extent that specific services entail them.

Third, an allocation of indirect costs is made to each specific service in proportion to direct costs previously assigned to that service. When all indirect costs have been allocated, the sum of service costs should equal the total budget of the linkage program.

Management costs, although often charged as direct, may have to be aggregated with indirect costs if they cannot be attributed to specific services as a commitment of management effort in each case.

Some linkage programs have the benefit of donated labor, either within the linkage facility itself or in field settings. In order to permit fair comparison of costs across programs that have the benefit of donated labor and those that do not, donated labor should be attributed to specific services at the market value of personnel who would otherwise have to be hired.

CLIENT OUTCOME DATA. The instrument for obtaining client reactions to services is a mail questionnaire (interchangeably, an interview schedule) that collects information on:

1. The client's position and level of work;

2. Services that the client acknowledges receiving from the linkage program;

3. Knowledge, attitude, and behavior outcomes that the client attributes to each service;

4. Past frequency of contact with the linkage program;

5. Projected future frequency of contact with the linkage program;

6. Client's opinion as to services that the linkage program handles "particularly well" and "rather poorly";

7. Client's opinion as to services that the linkage program does not now provide but should provide;

8. Open-ended commentary on any other aspects of the linkage program and its services, or on the personal history of the client's contacts with the program.

Since linkage programs differ by several orders of magnitude in the number of clients served per year, no single sample size is appropriate in all cases. However, statistical criteria governing minimum sample sizes per client type (position and level typology) suggest that, at a minimum, 500 mail questionnaires should be sent to clients randomly selected from the program's lists, with the expectation of a 50% usable response.

4. FIELD TRIAL OF EVALUATION DESIGN

Chapter 3 discussed the evaluation of linkage services in terms of the service-cost-outcome paradigm. Major considerations in measuring each of these factors were:

SERVICES

- -- Can be measured in terms of "services provided" -- that is, from the records of the linkage facility -- or in terms of "services received" -- that is, from statements of clients.
- -- Across the range of linkage facilities, can be aggregated as "retrieval services," "publication services," "media services," and "human services."
- -- Can be measured in terms of a typical pattern, such as frequency of services provided or received over the period of a year, or in terms of individual "critical incidents" for which linkage staff or clients report significant or at least memorable outcomes.

COSTS

- -- Need to be expressed per unit of service.
- -- Need to include both the direct and indirect costs of linkage services, the latter attributed to services in proportion to categories of direct costs.
- -- For purposes of comparison, should include the fair value of volunteer or "in kind" contribution to linkage programs.

OUTCOMES

- -- Should be distinguished from "outputs," which are an aspect of services provided; "outcomes" begin with services received.
- -- Refer to a sequence of effects in the client system, which, according to one's model of linkage effects, may begin with changes in clients' knowledge and attitudes and lead through changes in clients' behavior to effects

on students or other participants in the educational process, or may involve the same effect dimensions in a different order.

-- Can be measured "objectively" by observing clients and/or other participants in the education process, or can be measured "subjectively" by asking clients what they believe outcomes are.

PROCEDURE

The feasibility of service/cost measurement was "tested" via site visits to diverse linkage programs, included in the Acknowledgements at the beginning of this report. It was the expressed preference of some linkage directors that their programs not be discussed individually nor by name in our report of services and costs, since in some cases their programs are still in early phases of operation and in other cases their systems of recording services and costs are informal, in keeping with an "ambience" or style of operation appropriate to the clienteles they are serving. Token anonymity is maintained in the discussion that follows, just as, in the Acknowledgements section, site-visited programs are not distinguished from programs that only provided mailing lists of their clients.

SERVICE MEASURES. Except among the newest and/or most informal programs, it proved to be possible to specify the following information for whichever services (see pp. 3.4 and 3.5) a program provides:

1. TARGET AUDIENCE. At a minimum, linkage programs make a four-fold distinction among possible audiences when services are planned and implemented: (a) administrators; (b) teachers; (c) non-teaching specialists; and (d) researchers/developers. No program in the site-visited group planned services for the "general public," nor were such categories as "student" and "government employee" used in a functional sense (i.e., to differentiate services). However, hierarchical distinctions are made implicitly and affect the amount of attention that a service request receives. For example, information services shift from the "pre-packaged" norm to the "individualized" exception when a requestor has high status within any of the target audience categories.

   In all the programs we visited, the democratic counterpoint to status is regularity of use. Clients receive increasing amounts of attention as they increase their use of services. Program directors and staffs have a strong service ethic; regular users allow them to "show their stuff."

2. INITIATIVE. Generally, services are planned and implemented with a clear understanding that a "service episode" will take place only on a scheduled basis or only upon demand. There is minimal cross-over between the different recording systems that are required for scheduled versus demand services. In the well-established programs, analysis of demand patterns leads to redefinition of some demand services as scheduled in order to avoid duplication of effort. For example, popular topics of retrieval requests become the foci of scheduled bibliographies, and problems commonly encountered in individual consultations become the foci of workshops.

3. ACTIVITY INDEX. Numbers of clients brought into contact with each service are recorded or are estimatable. The average extent of each client's contact with a service (e.g., hours of contact time or number of successive service episodes) is recorded or is estimatable. The product of the two measures or estimates is an activity index for each service.

4. SUBSTANTIVE VERSUS PROMOTIONAL FUNCTION. Linkage programs have various reasons to promote themselves, and therefore not all services are substantive. Within each program it is possible to classify services as primarily promotional, secondarily promotional, or nonpromotional (i.e., entirely substantive). Like familiar brand names in the marketplace, well-established programs are able to derive secondary promotional value from most services that clients can attribute to them, even if the services are substantive per se. New programs have greater need for self-promotion; at some cost to substance, their services are structured to remind clients of the auspices under which the services are provided.

Across the diverse linkage programs visited in this project, the quality of service records is highly correlated with kinds of services provided. Programs that emphasize retrieval and publication services deserve no special credit for their extensive files on numbers of retrieval requests received and/or numbers of publication units sent out, although any retrieval or publication program lacking such data would be remiss. At the other end of the service continuum, programs that emphasize informal interpersonal contacts (e.g., between the staff of a teacher center and its drop-in clientele) can be forgiven their deficient files; it can even be argued that record-keeping upsets rapport between staff and clientele. On another dimension of record-keeping difficulty, media linkage programs must try to estimate how many clients, in various places and at various times, are making use of broadcasts, films, etc.

Additionally, the site visits established the fact that linkage programs maintain complete or incomplete service records according to each director's sense of the importance of such records. Some linkage directors are educational researchers or information scientists by training. They accept cost-efficiency criteria of successful operation, and they collect data indicative of cost-efficiency.

Other directors have clinical or humanistic training. They are skeptical of the quantitative approach, and they evaluate their operations on the basis of encounters with individual clients.

Generally speaking, information scientists do not direct teacher centers, and humanists do not direct retrieval programs. Thus the completeness or incompleteness of service records is doubly determined by the inherent quantifiability of different kinds of services and by the different temperaments of program directors.

An insight to be gained from these contrasts is that some linkage directors will invent their own systems for recording services, if a standardized system is not available, while other linkage directors will not adopt even a simple standardized system. Directors in the first category may or may not be subject to quantitative audit by sponsors or parent institutions. Directors in the second category are unlikely to be subject to quantitative audit; thus inducements to keep quantitative service records are lacking.

COST MEASURES. The completeness or incompleteness of cost records is not a function of linkage program directors' temperaments. All linkage programs must account for their expenditures, and most are short-funded relative to their objectives. However, only a minority of linkage programs (e.g., the ERIC clearinghouses) are required to express costs in terms of service units. In other programs, ability to unitize costs is a happenstance of staff assignments or materials usage. If it happens that a service is the exclusive responsibility of one or more staff members who consume known amounts of materials in providing the service and require known amounts of administrative support, space, etc., then naturally the unit costs of service can be determined. If these conditions are contravened, then the unit costs of a service will require special analysis, including studies of staff utilization, administrative support requirements, materials and space requirements, etc.

Linkage programs that offer specific products to their clients are most amenable to unit cost analysis, whether or not such analyses are routinely performed. Thus retrieval, publication, and media linkage programs offer the possibility of cost disaggregation in the following categories:

1. TOTAL BUDGET: all expenditures from all sources, including the market value of donated labor and services, for the accounting year.

2. TOTAL FIXED COSTS: costs that are relatively invariable regardless of changes in the volume of output (e.g., rent, utiliities, administration, maintenance, office supplies, etc.).

3. TOTAL VARIABLE COSTS: costs that vary with the volume of output (e.g., labor costs specifically for production or the provision of services, materials costs for production or service, costs of equipment or energy that would not be incurred in the absence of specific products or services).

4. PRODUCTS AND/OR SERVICES: itemized list of products/services taken from the 24 categories.

5. UNIT OF QUANTITY/TIME PERIOD: specification of the quantity and time units used to account for the volume of output associated with each product/service (e.g., a printing run, requests per month, broadcasts per year, etc.).

6. START UP AND MAINTENANCE COSTS: costs that were and are incurred in the creation of each production/service system and its continued operation (e.g., computer programming and maintenance).

7. LABOR: the direct labor cost of each product/service.

8. DONATED LABOR AT MARKET VALUE: the hypothetical replacement cost of donated (in-kind, volunteer) labor.

9. MATERIALS: the direct materials cost of each product/service.

10. DISSEMINATION: cost of bringing clients in contact with each product/service (e.g., mailing costs, telephone network costs, costs of convening workshops, costs of school visitors, etc.).

11. DONATED DISSEMINATION SERVICES AT MARKET VALUE: the hypothetical replacement cost of donated (free, in-kind, piggy-back) dissemination services (e.g., free mailing to members of a professional association).

12. TOTAL AGGREGATE PRODUCTION/SERVICE COST: for the commonly used quantity/time aggregate of each product/service, the sum of categories 7 through 11 plus proportionate allocations of 2 and 6).

13. TOTAL UNIT PRODUCTION/SERVICE COST: disaggregation of category 12 to the unit level.

EXAMPLES OF SERVICE COSTING. These examples of costs attributed to specific services are necessarily anecdotal, because of the small number of services that have been costed separately by any of the linkage programs visited in this project.

-- BROCHURES. The unit cost of a linkage program brochure combines a small amount of editorial labor with sizable production and mailing costs. Across a press run of 5,000 or more brochures, editorial labor falls to less $0.05 per unit, while production/mailing costs ranged from $0.13 to $0.40 per unit. Brochures costed low in the range were typically single-sheet, double-faced printings. Brochures costed high in the range were several pages in length and contained detailed lists of events such as workshops.

Newsletters are comparable to brochures in unit cost because of counter-balancing factors. Their press runs are smaller than the press runs of brochures (higher unit cost) but they are printed on thinner, often roll-fed stock (lower unit cost). One linkage program that produced both a brochure and a newsletter calculated unit costs of $0.30 and $0.18, respectively.

-- COMPUTER SEARCHES. Linkage programs offering computer searches use several non-profit and for-profit computer systems, all differing in unit costs according to the time charges of each computer, efficiency of retrieval software, etc. In a typical case, the unit cost of a computer search consists of $8.00 in labor (including overhead); $20.00 total for computer time, offline printing, and line charges (computers are located hundreds and even thousands of miles away from linkage sites); and $2.00 for delivery of the bulky printout to the client several days later. Labor costs include 20 minutes pre-search preparation, 20 minutes at the terminal, and 5 minutes post-search involvement with the printout when it later arrives. Terminal rental, about $1.00/hour, adds slightly to the $30.00 total.

-- CORRESPONDENCE ANSWERING QUESTIONS. In contrast to brochures, the unit cost of correspondence consists almost entirely of labor. One linkage program reports

that the average letter requires 15 minutes. Another program, located within a university, has adopted the university's rule of thumb that each letter costs $2.35 in labor. These independent estimates place the unit cost of a letter, including postage, in the $2.00-$2.50 range.

Although unit costs of correspondence are almost unrelated to volume, the range in correspondence volume is interesting. One linkage program (a retrieval program) reports only 60 outgoing letters per year, while another program (broadcasts for educators) reports 1,800 letters and a third (a large teacher center) reports 3,600 letters.

-- PERSON-TO-PERSON SERVICES. In the several person-to-person service categories (question-answering, referral, demonstrations, presentations, workshops, consultations, etc.), linkage programs have great difficulty attributing costs to units of service. For example, one retrieval program reports that $36,000 in salaries (exclusive of benefits and overhead) goes annually to these services, itemized as 70 question-answering episodes per day, 25 lengthy demonstrations of program operations per year, 20 long (5-10 hours) individual consultations per year, 5 group consultations or workshops per year, etc. These services require one or more staff members per client or group of clients; unstructured services like question-answering may require attention from most of the staff, some for hours and others for only minutes.

A large teacher center reports that 80% of its $670,000 budget (including overhead) is spent on person-to-person services, chiefly question-answering, workshops, and staffing the center for drop-in usage.

A professional convention can be viewed as structured person-to-person linkage. One professional association, which attracted 4800 persons to its 1974 convention, reports that the convention cost $70,000, including $40,000 in labor and $28,000 in printing, publicity, local arrangements, etc. The association further reports that the value of donated labor, if it could estimated, would greatly increase the true cost of planning and conducting its convention.

These examples are not meant to serve as guidelines. They reflect problems of unit-costing services in linkage programs that

CLIENT OUTCOME MEASURES. Responses concerning linkage outcomes were obtained from 1294 clients of 11 linkage programs. Table 4.1 provides a breakdown of the number of responses obtained from clients of each program.

The mail questionnaire used to measure client outcomes was structured by the list of variables that appears on page 3.8. Some questions dealing with services and outcomes were "closed-ended," hence amenable to quantitative analysis. Other questions sought client response on topics and factors that could not be structured and listed beforehand; these "open-ended" questions produced verbal statements that were analyzed qualitatively and extracted verbatim for this report.

The 1294 usable responses represent a return rate of only 29% from the total mailing of 4421 questionnaires. The low return rate can be attributed to several factors, including a number of outdated names/addresses on linkage program mailing lists, lack of motivation to complete and return the questionnaire, suspicion concerning this project's "true" purpose, etc.

Table 4.2 indicates that clients responding to the outcome questionnaire were about equally divided between elementary/secondary school settings and elsewhere, as were they about equally divided between those who teach, those who administer, and those engaged in all other activities.

Most commonly acknowledged linkage services, chosen by respondents from the 24 categories, were those dealing with information retrieval, followed by those dealing with publication. Non-substantive linkage services -- brochures and newsletters -- led the list overall. Least commonly acknowledged linkage services were those dealing with radio and television broadcasts for educators. Table 4.3 reports the frequency of linkage services acknowledged by clients.

The most common outcome attributed to linkage service was that of providing, or leading the client to, new materials related to the client's work. Other common outcomes were those of increasing general knowledge, enabling the client to provide information or advice to others, and solving a work-related problem. Clients were less likely to attribute attitude change outcomes to linkage services, and still less likely to attribute behavior change either to themselves or to students. Table 4.4 reports attribution of the 20 outcomes listed in the questionnaire.

Clients had two opportunities to be critical of linkage services when completing the questionnaire. Outcomes 18, 19, and 20 shown in Table 4.4 permitted clients to indicate dissatisfaction with linkage services merely by checking the "somewhat true" or "very true" options. A later open-ended question in the questionnaire asked the client to compare the particular linkage program on which the questionnaire focused with other linkage programs that the client is familiar with.

TABLE 4.1 Linkage facilities participating in client questionnaire study and total questionnaires returned by clients of each facility. (1294 cases)

Linkage Facility	Questionnaires
ERIC Clearinghouses on Exceptional Children, Teacher Education, and Information Resources	84
Kentucky Educational Television	64
Network of Innovative Schools (Massachusetts)	76
Project Communicate (Kansas)	189
Project Informs (Iowa)	177
Research for Better Schools, IPI Technical Assistance Program (Pennsylvania)	25
Research Information Services for Education (Pennsylvania)	192
Rhode Island Department of Education, Alternate Learning Center	97
San Mateo Educational Resources Center (California)	182
Social Studies Diffusion Project (Indiana)	59
Tennessee Research Coordinating Unit	149

TABLE 4.2 Positions and affiliations of responding linkage clients. (1294 cases; key in parentheses for Tables 4.5 - 4.94)

Position	Number	Percentage
Teacher	391	30
Administrator (Adm'str)	310	24
Resource specialist (Spec'st)	131	10
Other noninstructional professional staff (Nonins.)	204	16
Researcher, developer, evaluator (Res'chr)	61	5
Other: student, etc. (Other)	197	15

Affiliation	Number	Percentage
Elementary school (Elem Sch)	311	24
Secondary school (Sec Sch)	353	27
College or university (College)	204	16
Local education agency (LEA)	138	11
Intermediate education agency, state education agency, federal education agency (SEA/FEA)	214	16
Other: private company, foundation, etc. (Other)	74	6

TABLE 4.3 Frequency of linkage services reported by clients. (1294 cases; percentages below number of responses; see column key at end of table)

Service	N	A	S	M	W
Pre-packaged bibliographies or lists	651	195	263	163	22
	50	15	20	13	2
Individualized bibliographies or lists	682	178	265	133	36
	53	14	20	10	3
Pre-packaged compilations of abstracts	751	170	237	117	19
	58	13	18	9	1
Individualized compilations of abstracts	694	201	240	126	33
	54	16	19	10	3
Pre-packaged selections of documents	869	131	195	81	18
	67	10	15	6	1
Individualized selections of documents	693	165	256	131	49
	54	13	20	10	4
Brochures describing services	601	236	258	187	12
	46	18	20	14	1
Newsletters, bulletins, etc. (news and notes)	587	60	256	363	28
	45	5	20	28	2
Magazines, journals, etc. (substantive)	935	78	124	138	19
	72	6	10	11	1
Papers, shorter than monograph length	897	120	167	95	15
	69	9	13	7	1
Monographs or books	1064	96	92	31	11
	82	7	7	2	1
Print materials for classroom use	1010	99	92	70	23
	78	8	7	5	2
Films, other media for inservice training	1075	91	67	33	28
	83	7	5	3	2
Teleconferences, etc., for insvce. trng.	1216	46	16	12	4
	94	4	1	1	0
Radio broadcasts for educators	1223	33	14	17	7
	95	3	1	1	1

(continued)

TABLE 4.3 (continued) Frequency of linkage services reported by clients.

	N	A	S	M	W
Television broadcasts for educators	1187	39	22	18	28
	92	3	2	1	2
Media materials for classroom use	1094	59	57	37	47
	85	5	4	3	4
Correspondence answering questions, etc.	803	92	181	149	69
	62	7	14	12	5
In-person question answering, etc.	897	88	142	114	53
	69	7	11	9	4
Demonstrations of practices, skills, etc.	1052	103	105	23	11
	81	8	8	2	1
Convention, conference presentations	974	146	148	22	4
	75	11	11	2	0
Classes, workshops, seminars	1002	124	115	40	13
	77	10	9	3	1
Group consultations or technical assistance	1070	69	94	49	12
	83	5	7	4	1
Individual consultations or tech. assist.	977	86	123	78	30
	76	7	10	6	2
Other services (respondent's option)	1259	9	15	7	4
	97	1	1	1	0

COLUMN KEY:
N = less often than once per year, or never
A = about once per year
S = about twice per year
M = about monthly
W = about weekly

TABLE 4.4 Linkage outcomes reported by clients. (1294 cases; percentages below number of responses; see column key at end of table)

Outcome	N	S	V
Increased my general knowledge of the field of education	312 24	476 37	506 39
Gave me new concepts for approaching my work	388 30	405 31	501 39
Gave me new skills for doing my work	544 42	396 31	354 27
Helped me solve a problem related to my work	337 26	367 28	590 46
Provided, or led me to, new materials for my work	279 22	295 23	720 56
Increased my awareness of new educational practices	386 30	390 30	518 40
Helped me identify new sources of assistance for improving my work	389 30	366 28	539 42
Made me more satisfied with something I was already doing	602 47	409 32	283 22
Made me dissatisfied with something I was already doing	835 65	377 29	82 6
Gave me a favorable attitude toward something I might do differently	636 49	341 26	317 24
Helped me make a decision concerning a new educational practice	558 43	339 26	397 31
Encouraged me to try a new educational practice	603 47	315 24	376 29
Led me to adopt a new educational practice on a more or less permanent basis	743 57	336 26	215 17
Enabled me to provide information or advice to others	323 25	303 23	668 52
Introduced me to educators with similar problems	722 56	358 28	214 17

(continued)

TABLE 4.4 (continued) Linkage outcomes reported by clients.

Outcome	N	S	V
Enhanced the learning experiences of students I work with	732	313	249
	57	24	19
Enhanced other experiences of students I work with	850	292	152
	66	23	12
Were OK as far as they went but didn't really meet my needs	890	328	76
	69	25	6
Proved to be less useful than they were represented to me	971	246	77
	75	19	6
Proved to be unreliable or misleading	1079	195	20
	83	15	2

COLUMN KEY: N = not true, or not reported either way
S = somewhat true
V = very true

On the scale of increasing dissatisfaction with linkage services, 31% of the clients responded that it was "somewhat true" or "very true" that services "were OK as far as they went but didn't really meet my needs." Still combining the "somewhat true" and "very true" responses, 25% of the clients responded that services "proved to be less useful than they were represented to me," and 17% of the clients responded that services "proved to be unreliable or misleading." These relative percentages can be compared with, for example, 76% of the clients who responded that services "increased my general knowledge of the field of education" and 43% who responded that services "led me to adopt a new educational practice on a more or less permanent basis."

The structured dissatisfaction responses are discussed later in relation to clients' positions and affiliations (Tables 4.89 - 4.94). Dissatisfaction responses that arose in comparisons of linkage programs with each other are also discussed later.

Tables 4.5 - 4.54 display clients' acknowledgement of linkage services in relation to their positions and affiliations (Tables 4.7 - 4.54 are in Appendix B). What these tables chiefly show is that certain categories of clients use (or acknowledge) linkage services far more than others. By position, "resource specialists" make the most use of linkage services, followed by administrators and other noninstructional professional staff. Except for a few services (e.g., "media materials for classroom use"), teachers make the least use of linkage services.

By affiliation, personnel in state and federal education agencies make the most use of linkage services, followed by personnel in local education agencies. Personnel in elementary and secondary schools are heavy users only of services intended for them, such as materials for classroom use and for inservice training.

It can be misleading, however, to focus on concentrations of use within position and affiliation categories that are not dominant within the national distribution of educators by position and affiliation. The instructional staffs of elementary and secondary schools comprise the largest numbers of educators by position/affiliation. This group is probably underrepresented in our client sample because of differential response to the client questionnaire (i.e., it was more convenient for administrators, resource specialists, etc., to respond to the questionnaire as part of the daily paperwork). Given their numerical dominance in the national distribution of educators, it is probably true that more teachers in elementary/secondary schools receive linkage services than any other position/affiliation category.

The client questionnaire was not intended to be parametric in providing such estimates of usage. Personal interviews or other forms of measurement not as subject to response bias as the questionnaire would be needed to provide parametric estimates.

TABLE 4.5 Frequency of use or receipt of "pre-packaged bibliographies or lists" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	236	136	51	95	28	105	651
	60.4	43.9	38.9	46.6	45.9	53.3	50.3
Less than Monthly	128	116	42	79	25	68	458
	32.7	37.4	32.1	38.7	41.0	34.5	35.4
Monthly or More	27	58	38	30	8	24	185
	6.9	18.7	29.0	14.7	13.1	12.2	14.3
Column	391	310	131	204	61	197	1294
Total	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 57.39030 with 10 degrees of freedom: probability = .00

TABLE 4.6 Frequency of use or receipt of "pre-packaged bibliographies or lists" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	184	187	94	64	87	35	651
	59.2	53.0	46.1	46.4	40.7	47.3	50.3
Less than Monthly	100	126	80	52	72	28	458
	32.2	35.7	39.2	37.7	33.6	37.8	35.4
Monthly or More	27	40	30	22	55	11	185
	8.7	11.3	14.7	15.9	25.7	14.9	14.3
Column	311	353	204	138	214	74	1294
Total	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 41.67963 with 10 degrees of freedom: probability = .00

Tables 4.55 - 4.94 (all in Appendix B) display clients' acknowledgement of linkage outcomes in relation to their positions and affiliations. By position, respondents acknowledged the kinds of outcomes that the requirements of their work would lead us to expect. For example, only teachers responded strongly that linkage services "enhanced the learning experiences of students I work with." Only administrators responded strongly that linkage services "helped me make a decision concerning a new educational practice."

By affiliation, respondents in elementary schools were most positive about the outcomes of linkage services they received. Respondents in secondary schools and state/federal education agencies were also more likely than the other clients to acknowledge a positive outcome.

Combining the "somewhat true" and "very true" responses, the three negative outcomes (Tables 4.89 - 4.94) are reported most frequently by teachers. By affiliation, the negative outcomes are reported most frequently by respondents in elementary schools.

However, when we look only at the strong "very true" responses, researchers rather than teachers most reported "proved to be less useful." Similarly, resource specialists and other noninstructional staff most reported "proved to be unreliable or misleading." The affiliation or setting most associated with these strong negative responses is college rather than elementary school.

Although it is revealing to examine the distribution of reported services and outcomes individually, we cannot hope to juxtapose the 25 individual services and the 20 individual outcomes in an analysis of the relationship between services acknowledged and outcomes reported. Therefore individual services and outcomes were factored into larger constructs that could be juxtaposed.

Table 4.95 shows the composition of five service constructs or factors derived from the 25 individual services. In general, the factors reflect distinctions made by respondents between retrieval services, publication services, media services, and human services, with publication services divided between two factors (to some extent, distinctions made by respondents were constrained by actual patterns of services offered by linkage programs).

Table 4.96 shows the composition of five outcome constructs or factors derived from the 20 individual outcomes. Except for the fact that the three negative outcomes form a factor of their own, it may be misleading to label the outcome factors. However, outcome factor I relates more to knowledge gained; outcome factor III relates more to new attitudes and new behaviors; outcome factor IV relates more to students' learning experiences, etc.

The five service factors and five outcome factors form the simpler variable sets needed to test relationships between services and outcomes.

TABLE 4.95 Factor pattern of linkage services. (Orthogonal principal axis varimax solution; coefficients below .40 omitted)

Service	Factors I	II	III	IV	V
Pre-packaged bibliographies or lists	.62	-	-	-	-
Individualized bibliographies or lists	.70	-	-	-	-
Pre-packaged compilations of abstracts	.69	-	-	-	-
Individualized compilations of abstracts	.71	-	-	-	-
Pre-packaged selections of documents	.66	-	-	-	-
Individualized selections of documents	.68	-	-	-	-
Brochures describing services	-	-	-	-	.63
Newsletters, bulletins, etc. (news and notes)	-	-	-	-	.62
Magazines, journals, etc. (substantive)	-	-	-	.62	-
Papers, shorter than monograph length	-	-	-	.62	-
Monographs or books	-	-	-	.55	-
Print materials for classroom use	-	-	-	.44	-
Films, other media for inservice training	-	-	.55	-	-
Teleconferences, etc., for insvce. trng.	-	-	.54	-	-
Radio broadcasts for educators	-	-	.76	-	-
Television broadcasts for educators	-	-	.69	-	-
Media materials for classroom use	-	-	.54	-	-
Correspondence answering questions, etc.	-	.56	-	-	-
In-person question answering, etc.	-	.65	-	-	-
Demonstrations of practices, skills, etc.	-	.69	-	-	-
Convention, conference presentations	-	.60	-	-	-
Classes, workshops, seminars	-	.64	-	-	-
Group consultations or technical assistance	-	.71	-	-	-
Individual consultations or tech. assist.	-	.69	-	-	-

TABLE 4.96 Factor pattern of linkage outcomes. (Orthogonal principal axis varimax solution; coefficients below .40 omitted)

Outcome	Factors I	II	III	IV	V
Increased my general knowledge ...	.50	-	-	-	-
Gave me new concepts ... work	.50	-	-	-	.42
Gave me new skills ... work	.46	-	-	-	.42
Helped me solve a problem ... work	.58	-	-	-	-
Provided, or led me to, new materials ...	.69	-	-	-	-
Increased my awareness ... new practices	.51	-	-	-	-
Helped identify new sources of assistance ...	.61	-	-	-	-
Made me more satisfied ... already doing	-	-	-	-	.45
Made me dissatisfied ... already doing	-	-	.48	-	-
Gave me favorable attitude ... do differently	-	-	.54	-	.40
Helped me make a decision ... new practice	-	-	.63	-	-
Encouraged me to try ... new practice	-	-	.65	-	-
Led me to adopt ... new practice	-	-	.65	-	-
Enabled me to provide information ... others	.62	-	-	-	-
Inroduced me to others ... similar problems	-	-	.45	-	-
Enhanced learning ... my students	-	-	-	.72	-
Enhanced other experiences ... my students	-	-	-	.69	-
OK ... but didn't really meet my needs	-	.70	-	-	-
Proved to be less useful ... than represented	-	.89	-	-	-
Proved to be unreliable or misleading	-	.70	-	-	-

Each of the five outcome factors served in turn as the dependent variable of a multiple regression analysis in which the five service factors were predictors. Table 4.97 reports results for outcome factor I ("increased my general knowledge ...," etc.). With more than 1250 degrees of freedom, partial regression coefficients larger than .10 are "statistically significant," but only much larger coefficients help to predict different scores on the outcome factor. Only the first service factor ("bibliographies ...," etc.) substantially predicts the responses that make up the first outcome factor. This is not a spurious or artifactual relationship, because respondents could have attributed knowledge outcomes to any of the services they received, and, of course, certain numbers did so.

Outcome factor II, composed of the three negative outcomes, is not well predicted by any pattern of acknowledged services, but Table 4.98 shows that it is most strongly related to the third service factor ("films, teleconferences, broadcasts ...," etc.). The fact that few respondents reported negative outcomes creates a skewed distribution on this dependent variable and provides a statistical reason for poor prediction.

Outcome factor III, which chiefly concerns new attitudes and new behaviors, is most strongly related to the human services of the second service factor (Table 4.99). However, other service factors are almost as strongly related, and it cannot be said that only one pattern of services leads to the report of such outcomes.

Outcome factor IV, which concerns the reported effect of linkage services on student experiences, is related to the two service factors (III and IV) that include materials for classroom use. Since more than half the sample of respondents did not report outcomes at the level of student experiences, there are statistical reasons why the prediction of such outcomes is poor.

The one negative partial regression coefficient in Table 4.100 is not "statistically significant" and should not be interpreted as the negation of an outcome by a particular pattern of services.

Outcome factor V, which had the weakest pattern of related outcome responses in Table 4.96, is also the most weakly predicted by service factors. Table 4.101 shows that no service factor has an interpretable relationship to the somewhat disparate set of outcomes represented by this factor.

These five multiple regression analyses exhibit the weak patterns of prediction that result from response "error" in large-sample mail-questionnaire studies and from statistical artifacts, chiefly skewness in the dependent variables. They do indicate, however, systematic relationships between patterns of services acknowledged and patterns of outcomes reported.

TABLE 4.97 Multiple regression of linkage service factors on outcome factor I ("increased my general knowledge ..., gave me new concepts/skills/materials/practices/assistance ... for doing my work, helped me solve a problem related to my work, enabled me to provide information ... to others")

Predictor	Partial Regression Coefficient
Service factor I ("bibliographies, abstracts, documents")	.35
Service factor II ("question-answering, demonstrations, presentations, workshops, consultations, technical assistance")	.18
Service factor III ("films, teleconferences, broadcasts for educators, media materials for classroom use")	.00
Service factor IV ("journals, papers, monographs, print materials for classroom use")	.06
Service factor V ("brochures describing services, newsletters, bulletins")	.04

Multiple correlation = .42

TABLE 4.98 Multiple regression of linkage service factors on outcome factor II ("OK ... but didn't really meet my needs, proved to be less useful ... than represented, proved to be unreliable or misleading")

Predictor	Partial Regression Coefficient
Service factor I ("bibliographies, abstracts, documents")	.01
Service factor II ("question-answering, demonstrations, presentations, workshops, consultations, technical assistance")	.05
Service factor III ("films, teleconferences, broadcasts for educators, media materials for classroom use")	.19
Service factor IV ("journals, papers, monographs, print materials for classroom use")	.07
Service factor V ("brochures describing services, newsletters, bulletins")	.03

Multiple correlation = .22

TABLE 4.99 Multiple regression of linkage service factors on outcome factor III ("made me dissatisfied with something I was already doing, gave me a favorable attitude toward something I might do differently, helped me make a decision/try/adopt ... new practice, introduced me to others ... similar problems")

Predictor	Partial Regression Coefficient
Service factor I ("bibliographies, abstracts, documents")	.16
Service factor II ("question-answering, demonstrations, presentations, workshops, consultations, technical assistance")	.21
Service factor III ("films, teleconferences, broadcasts for educators, media materials for classroom use")	.12
Service factor IV ("journals, papers, monographs, print materials for classroom use")	.09
Service factor V ("brochures describing services, newsletters, bulletins")	.10

Multiple correlation = .36

TABLE 4.100 Multiple regression of linkage service factors on outcome factor IV ("enhanced the learning experiences/other experiences of students I work with")

Predictor	Partial Regression Coefficient
Service factor I ("bibliographies, abstracts, documents")	-.05
Service factor II ("question-answering, demonstrations, presentations, workshops, consultations, technical assistance")	.01
Service factor III ("films, teleconferences, broadcasts for educators, media materials for classroom use")	.18
Service factor IV ("journals, papers, monographs, print materials for classroom use")	.14
Service factor V ("brochures describing services, newsletters, bulletins")	.06

Multiple correlation = .25

TABLE 4.101 Multiple regression of linkage service factors on outcome factor V ("gave me new concepts/skills ... for doing my work, made me more satisfied with something I was already doing, gave me a favorable attitude toward something I might do differently")

Predictor	Partial Regression Coefficient
Service factor I ("bibliographies, abstracts, documents")	.07
Service factor II ("question-answering, demonstrations, presentations, workshops, consultations, technical assistance")	.10
Service factor III ("films, teleconferences, broadcasts for educators, media materials for classroom use")	.07
Service factor IV ("journals, papers, monographs, print materials for classroom use")	.11
Service factor V ("brochures describing services, newsletters, bulletins")	.03

Multiple correlation = .20

The mail questionnaire also asked linkage service clients whether they expected their use of linkage services to increase, decrease, or remain the same in the coming year; whether their work would be affected significantly by the discontinuance of services by the linkage program they were responding about; and by whom the costs of linkage services should be borne.

Of the 1038 clients who ventured to predict their use of linkage services for the coming year, 34% predicted an increase, 13% a decrease, and 53% the same level of use as before. Some of the verbatim comments associated with these responses are presented below.

Discontinuance of linkage services would significantly affect their work, responded 40% of 967 clients dealing with this question. Associated verbatim comments are presented below.

A total of 936 clients dealt with the question of sponsorship, 26% responding that linkage service costs should be borne wholly by clients, 65% that costs should be borne by a sponsor, and 9% that costs should be shared between clients and sponsors. Of the 541 clients who named a possible sponsor, 45% suggested that it be the state department of education, 28% a county or local agency, 23% a federal agency, and 4% a foundation.

"Open-ended" comments elicited by a mail questionnaire often represent the two poles of opinion on an issue, because persons in the middleground of an issue may not be concerned enough to write in their own views in addition to structured responses. Comments that follow are alternately quite positive and quite negative (parentheses indicate comments that have been paraphrased or expanded for clarity; dashes separate clients' comments):

> "Somehow your questionnaire was lost. I received the letter. The (linkage program) has served us in the following manner. (Respondent names four positions that he occupies, including principal of an elementary school, director of two evening programs, and summer instructor at university.)
>
> "I have used (linkage program) extensively in conjunction with these four responsibilities. The summaries and booklets they supplied to enrich, inform, and provide conceptual outlook were excellent. They proved beneficial to individuals, classes, and the district alike.
>
> "The organization was most courteous, efficient, and quick in its work. We covered a multitude of topics as you can probably guess. Its work is a solutely needed in our area, and I cannot recommend it too highly. An A-1 organization½
>
> "I hope this helps in lieu of questionnaire."

"(Another linkage program) sometimes delays filling requests. Dislikes reproducing large quantities of microfilm at one time. Does not have educational journal microfilms. This questionnaire is prejudiced, because you do not provide for 'no services received.' The main service rendered by (linkage program) is all the forms we have to fill out for them.

"(Linkage program) is not much value in solving real problems. The leadership is anti-service oriented. Their priorities do not jibe with teacher education needs. There is very little contact between (linkage program) staff and teacher education staff."

"We are of the opinion that (linkage program) is one of the most valuable service organizations in the entire nation. It is difficult in a questionnaire response to reflect the fact that its services are so valuable to education in (our state) and beyond. Its discontinuance would represent a loss of one of the most significant back-up services for effective education."

"(With discontinuance) the research would be drastically affected. Right now, with rising costs of publications, we are not attempting to increase our professional collection adequately, and so we depend on (linkage program) to complement our collection. We attempt to be a reference library to our staff and do store the educational periodicals and get a few of the more popular educational books, but we mainly get indexes and then help our staff to learn how to use the research materials. We refer them to (linkage program) and local colleges to complete their projects."

"I used (linkage program) for background data for my dissertation. Found them of little use. They lacked basic research and relied heavily on educational editorials in my area. I did receive marvelous personal attention but the data I needed wasn't there."

"Let me indicate to you that as a resource specialist of an intermediate unit that serves twelve public school districts with a student enrollment of 66,000, the concept of (linkage program) has been heartily endorsed by all of the twelve school districts in our intermediate unit. A concrete example of this is that our local costs for this service have increased by about 30% for our 1975-76 school year budget and there has not been one complaint from any of our 108 school directors. I fully realize that continued federal support of this project may be in jeopardy. However, I believe that in another four or five years local and state support can reach 70% to 75% of the cost of this valuable service."

"I often use (linkage program) as an initial collector of research information. Call it the first screening. Often, I must go to other sources, like a university library, to follow up. Loss of this service would only add a fraction of time to my own efforts, to be exact. My big complaint is that (linkage program) is often very slow in responding to individual inquiries requiring review."

"I would not be able to speedily get the bibliographic resources I need to make decisions and recommend policy. As a frantically busy public administrator I can rarely afford the luxury of library hours to review the literature. (Linkage program) does that for me and finds stuff I could never find even with the state library two floors below me."

"Services from ERIC I can obtain directly. In order to use the services of (linkage program), I must hand my request to the school superintendent who has to submit it to (lnkage program) through the intermediate unit. Time lapse and effort of many."

"(Linkage program) is a valuable source of information for help in solving problems. I have found that this agency is providing one of the most effective services I have received in my entire professional experience, which extends over a period of more than 48 years."

"This organization also serves as a clearinghouse for people to get in touch with other people in the field. Human resources would be limited significantly (by its discontinuance)."

"First, I am not a client or a direct beneficiary of the (linkage program') services. As a member of a Title III evaluation team, I did participate in an intensive evaluation.

"The team concluded that the (linkage program) fulfilled a vital need of schools (in our region) to end their isolation and commence renewal through teams of teachers linked by (linkage program) workshops and publications to other schools and teachers, regionally and across the state. The (linkage program) staff offered diverse talents and a coherent and practical process for responding to the schools' felt need for change."

"(We appreciate) in-school seminars and refreshment exercises for teachers. The (linkage program) staff has a tremendous fund of energy and good ideas to impart to work-weary teachers if only they had the outreach to get to more of us."

"(My use will decrease.) Of the two packets I received, one was not sufficiently specific. The other information I won't be using for a few years. I don't plan to order anymore."

"I spend about half my time on literature searches. Curtailment or discontinuance of (linkage program) would cut out 25% of my sources, as well as most of the best information on current program."

"(Linkage program) has provided a significant level of support for us in the past. This consisted of training administrators who then trained teachers, provided materials, and provided traveling consultant help in the schools."

"(Linkage program) is presently a diffusion network in that it diffuses information about educational practices. However, it is not truly a disseminator or facilitation network since it dispenses only information, not human resources that could help the local education agency better utilize the information received."

"Perhaps of greatest help to us were the microfiche obtained through (linkage program). Because of these we have a portable library at our fingertips which allows a group of teachers to work together with materials that all can study at the same time."

"The current literature (world wide in scope) would be lost to me. In a rural area, with no learning center which has a special learning problems library, this service fills a real void."

"(Linkage program) needs much improvement for real assistance to faculty! I have tried several times to use the service, but the information received wasn't that helpful. Each time I made a personal visit and talked with several persons before talking with the right person. When the data and information were received, they were disappointing each time. Assistance in writing a proposal and identification of available films was about the same. I wouldn't go back for additional help. I'll find other more helpful sources."

"Current materials would not be available to our students on vocational entry-training, etc. The fact is that the guidance department at our high school has only $89 available to it for materials of any sort since the Title V funds were discontinued. This should tell you that no material of any kind would be available otherwise."

In summary, positive comments reiterate, "We are strapped; we have no alternative to this kind of service. Sometimes it works well, and at least it's always there." Negative comments reiterate, "I have other sources that I can turn to for the same services."

5. RECOMMENDATIONS

The goal of this project was to design an evaluation procedure that could bring diverse educational linkage programs into a common focus for purposes of policy planning by sponsoring agencies and by linkage programs themselves. Simplicity and wide applicability were to be criteria of the evaluation procedure's usefulness.

In designing an evaluation procedure around the triad of service/cost/outcome factors, we made necessary assumptions about records kept by linkage programs. We later learned that most of the site-visited linkage programs lacked records on unit-costed services, and in most cases their separate records on services and costs could not be juxtaposed for unit-costing even after the fact. The unit costs of linkage services chiefly combine two kinds of direct costs -- labor and materials -- as well as indirect costs. Rarely are these costs attributed to specific services; often the volume of service itself is only casually recorded.

However, the shortcomings of existing records are not at issue in an evaluation procedure except insofar as they limit comparisons backward over time. The "wide applicability" of an evaluation procedure refers to the ability and willingness of linkage programs to keep such records in the future, not to have kept them in the past.

Recommendations generated by this project are both substantive and methodological. Underlying both sets of recommendations are the following assumptions:

1. Through projects like this, the definition of educational linkage has broadened far beyond the information retrieval functions that linkage formerly denoted. Although an agency may wish to focus on specific kinds of linkage as it reviews its policies, the array of other linkage programs continues to provide context. Once having recognized complementary functions performed by linkage programs as diverse as teacher centers, technical assistance programs, broadcasts for educators, school study councils, etc., it is assumed that an agency will prefer the systemic richness of a linkage definition that encompasses these programs and more.

2. It is assumed that no agency will undertake sponsorship of more than a small fraction of the hundreds of ongoing educational linkage programs in the United States. Many agencies at the federal, state, and local levels, as well as professional associations, foundations, and proprietary interests, will share sponsorship of the total array of programs. An increasing number of linkage programs will support themselves through service charges, particularly as services become more efficient and cost-competitive with alternatives faced by clients of providing linkage services for themselves or taking action without benefit of services.

   Such distributed responsibility for linkage programs will limit the prerogative of any agency to standardize service/cost/outcome records. No standard record-keeping system can be mandatory; linkage program directors and their sponsors will have to perceive an advantage to themselves in keeping standard records.

3. It is assumed that maturing linkage programs will continue to move "downstream" from information retrieval functions with which many of them began, in the direction of problem solving, technical assistance, staff development, and maintenance of innovative "workplaces" close to the classroom. Bibliographic and publication services will be augmented by media and human services. Instead of conveying stock information and products from the R&D sector to the schools, linkage programs will assist school cooperatives in generating their own locally appropriate information and products.

   "Downstream" linkage services will continue to be less amenable to unit cost analysis than "upstream" services.

4. It is assumed that the impact of a linkage program on its clients will continue to be just one of many forces that cause changes over time in their work-related knowledge, attitudes, and behaviors. The etiology of change will continue to be obscure: critical incident analyses will provide a satisfying amount of detail in individual cases without clarifying larger trends; surveys will clarify larger trends without attributing the trends in a satisfying manner to linkage or any other cause.

These assumptions are not a pessimistic assessment of anyone's future progress except the evaluator's. The broadened definition of linkage has the vitality of a major force for change in education.

Growing pluralism in sponsorship is a needed alternative to further "feast and famine" federal funding, which demoralizes linkage staffs and confuses clients. Maturing linkage programs are no longer R&D conveyer belts; they are problem solving resources for the schools. The fact that forces for educational renewal are many and varied, obscuring the direct impact of linkage services, is a positive statement about the condition of American education.

However, insofar as these assumptions imply that evaluation of educational linkage will not be easy or definitive, they influence the recommendations that follow:

1. Despite what appears to be an ample literature on educational change (exemplified by references at the end of this report), little is known about the process by which different linkage services affect different tasks of teachers, administrators, and others. The conventional forms of linkage services (e.g., documents, bibliographies, workshops, etc.) may be remedies for educational problems or they may be placebos. Teachers and administrators are ambivalent about the role of R&D in education. On the one hand, they were trained in the logical positivist tradition that fosters R&D. On the other hand, they see little evidence that their students benefit from R&D information and products. As linkage clients, they may respect R&D-based services, but we cannot be confident of the extent to which these services lead to knowledge, attitude, or behavior change.

   Educational linkage is a system for sharing facts, ideas, values, and skills related to educational work. Educational work is shaped by political, economic, and social forces that are more powerful in the short term than facts, ideas, values, and skills. The interplay of these forces in settings where linkage services are provided needs to be understood before the impact of linkage services can be evaluated.

   There is no parametric "truth" about the role of linkage in educational change. A sampling of case studies of linkage services in the context of political, economic, and social forces will equal or exceed the validity of a national survey that gathers superficial facts about linkage.

2. Our visits to linkage programs persuaded us that each form of linkage is being practiced successfully in some programs while it is being reinvented elsewhere. Linkage programs arose in different educational service traditions; linkage personnel have no common meeting ground -- no professional association, no journal, no summer workshops. Federal efforts to convene subgroups are a small step toward a network or association for the exchange of successful linkage strategies.

   Linkage personnel, who are in the "sharing business," have less opportunity to share their successes and failures with each other than teachers, counselors, administrators, R&D personnel, or any other group in education.

   With intergovernmental sponsorship if necessary, a network or association of linkage personnel should be created. The minimal sponsorship costs will be offset by gains in linkage effectiveness and, farther down the road, by resource sharing among programs.

3. There are few visible efforts to move educational linkage up to its next technological plateau. The importance of computer information retrieval is warmly acknowledged by linkage staffs and clients, but the next generation of technological aids seems to be stranded on the drawing boards. Telecommunication technology can link educators with remote sources of assistance; the next revolution in human services may depend on such technology, given energy-related communication/transportation tradeoffs. Audiovisual technology can provide information, demonstrations, and "images of potentiality" (Ronald Lippitt's phrase) more effectively than print, but a typical linkage program has almost no media services.

   Computers themselves can do far more for linkage than dredge up references. Full-text information banks are growing across the country, and data banks such as those maintained by the National Center for Educational Statistics are becoming available on-line. On another dimension, dozens of computer games have been developed on such topics as innovation, decision making, intergroup relations, etc. It would be possible for many linkage programs to put clients on-line to these resources via terminals already in place.

Before the evaluation of existing linkage services is formalized, it will be well to consider how services can be improved through technological augmentation. If a service (e.g., demonstrations of new practices) can be improved markedly by the use of telecommunication, audiovisual, or computer aids, then evaluation of the pre-technological form may be wasted effort.

4. However, because some monitoring of linkage programs is necessary for policy planning, we will recommend the following use of the evaluation design developed in this project:

   a. An agency, working with the linkage programs that it finds most cooperative, should further test the service and cost forms to determine if programs are willing to adopt the forms as part of their record-keeping systems for periods of a year or longer.

   b. The exercise of unit-costing services should continue until the conventional services, at least, have known costs -- higher or lower according to different arrangements for providing the services in different programs.

      Once the unit-costs of conventional services are determined, however, the costing exercise should be terminated. It does not add to our understanding of educational linkage to learn repeatedly that brochures cost $0.20 or that computer searches cost $30.00.

   c. Linkage programs whose budgets seem out of line given their service volumes can be reviewed at any level of disaggregation down to unit costs, but it is likely that reasons for higher or lower budgets will be clear in aggregated budget categories.

   d. Attribution of outcomes to linkage services can be approached in several ways, in addition to or instead of the mail questionnaire completed by linkage clients in this project. Critical incident analyses of individual cases help to clarify the process by which a linkage transaction leads to change in knowledge, attitude, or behavior.

Another design for attribution of outcomes is feasible only in restricted settings that would limit generalization. Although most regions of the United States are served by many linkage programs in indirect competition with each other, there are of course some counties that are remote, both geographically and psychologically, from linkage programs in state capitals and out of state. Demographically comparable pairs of counties could be invited to participate in linkage experiments. In such settings the direct impact of linkage services should be more apparent than in settings where, in fact, most linkage programs operate.

"Expert opinion" is not a causal attribution procedure, but neither should the opinions of experts on the probable impact of linkage services be disccunted. There are directors and staff members in linkage programs across the country who can expertly critique the conduct of a workshop, the preparation of a bibliography, and indeed the performance of any linkage service.

Expert opinion becomes a commentary on linkage impact through the logic of normative impact. That is, if an "average" well-conducted workshop has a normative impact on attendants' knowledge, attitudes, and behaviors, how does impact change if a workshop is conducted much better or worse than the average? Expert opinion can help to calibrate such differences, with about as much validity as outcome attributions obtained from clients themselves.

APPENDIX A: A SAMPLING OF LINKAGE PROGRAMS

Defining "linkage programs" according to the 10 major categories described in Chapter 2, there are well over a thousand such programs in the United States. Table 1.1 included eight of the more enumeratable categories, showing the distribution of about 850 programs across the country. Intermediate and local education agencies undoubtedly sponsor programs that are missed in an enumeration. In addition, some programs are established for periods of a few years to accomplish specific tasks of dissemination, demonstration, technical assistance, etc., and are then disestablished under their original sponsorship. Such programs create cadres of skilled personnel who continue to perform linkage functions in other, perhaps harder-to-identify programs.

Listed in this appendix are a sampling of 200 linkage programs. they illustrate the pluralism of forms, sponsorship, institutional settings, etc. that characterizes linkage in the educational system of the United States. Although it is possible to attach the labels of "information center," "technical assistance," etc. to these programs, linkage staff usually object to labelling. The mature programs, such as RISE in Pennsylvania, perform so many linkage functions that any label would be misleading.

In any sampling of linkage programs, some states will be under-represented. It is not true, for example, that Alabama and Alaska have only one linkage program each.

ALABAMA	SOUTHERN STATES COOPERATIVE LEARNING RESOURCES SYSTEM Auburn University at Montgomery Montgomery, Alabama 36104
ALASKA	INSTRUCTIONAL MATERIALS CENTER 1602 Hillcrest Drive Anchorage, Alaska 99503
ARIZONA	AEA RESEARCH INFORMATION SERVICE 2102 West Indian School Road Phoenix, Arizona 85015

ARIZONA RESEARCH COORDINATING UNIT
1535 West Jefferson
Phoenix, Arizona 85007

ARKANSAS

ARKANSAS KETS-ETV
Broadcasts for Educators
Jefferson Square
Pine Bluff, Arkansas 71601

ARKANSAS RESEARCH COORDINATING UNIT FOR OCCUPATIONAL EDUCATION
GE 109
University of Arkansas
Fayetteville, Arkansas 72701

CALIFORNIA

BAY AREA LEARNING CENTER
1025 Second Avenue
Oakland, California 94606

CENTER FOR RESEARCH AND DEVELOPMENT IN HIGHER EDUCATION
University of California
Berkeley, California 94704

CONTINUING EDUCATION FOR EDUCATORS
Extension Services
San Jose State University
San Jose, California 95192

CREATIVE ENVIRONMENTS LEARNING CENTER
1876 E. Firestone Boulevard
Los Angeles, California 90001

EDUCATIONAL INFORMATION CENTER
1555 Berger Drive
San Jose, California 95112

ERIC CLEARINGHOUSE ON INFORMATION RESOURCES
School of Education
Stanford University
Stanford, California 94305

ERIC CLEARINGHOUSE FOR JUNIOR COLLEGES
Powell Library Building
University of California
Los Angeles, California 90024

FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT
1855 Folsom Street
San Francisco, California 94103

INSTRUCTIONAL MATERIALS CENTER FOR SPECIAL EDUCATION
University of Southern California
Suite 623
1021 South Broadway
Los Angeles, California 90015

LEARNING MAGAZINE
530 University Avenue
Palo Alto, California 94301

LOCKHEED INFORMATION SYSTEMS
3251 Hanover Street
Palo Alto, California 94304

PROFESSIONAL DEVELOPMENT CENTER
3240 Peralta Street
Oakland, California 94608

PROGRAM DEVELOPMENT CENTER OF NORTHERN CALIFORNIA
Chico State University
Chico, California 95926

SAN MATEO EDUCATIONAL RESOURCES CENTER
333 Main Street
Redwood City, California 94063

SOUTHWESTERN REGIONAL LABORATORY
4665 Lampson Avenue
Los Alamitos, California 90720

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT IN TEACHING
School of Education
Stanford University
Stanford, California 94305

SUNFLOWER SOURCE
P.O. Box 2227
Menlo Park, California 94025

COLORADO

ERIC CLEARINGHOUSE FOR SOCIAL STUDIES/SOCIAL SCIENCE EDUCATION
855 Broadway
Boulder, Colorado 80302

MOUNTAIN VIEW CENTER
University of Colorado
1511 University Avenue
Boulder, Colorado 80302

NATIONAL CENTER FOR HIGHER EDUCATION MANAGEMENT SYSTEMS
Western Interstate Commission for Higher Education
P.O. Drawer P
Boulder, Colorado 80302

NORTHERN COLORADO EDUCATIONAL BOCS
Information Retrieval Center
130 South Lincoln Street
Longmont, Colorado 10501

ROCKY MOUNTAIN SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
University of Northern Colorado
Greeley, Colorado 80631

CONNECTICUT

EDUCATIONAL RESOURCES CENTER
Area Cooperative Educational Services
12 Village Street
North Haven, Connecticut 06473

INSTITUTE ON OPEN EDUCATION
University of Hartford
200 Bloomfield Avenue
West Hartford, Connecticut 06117

NEW ENGLAND RESEARCH APPLICATION CENTER
University of Connecticut
Mansfield Profesional Park
Storrs, Connecticut 06268

TEACHER INTERACTIVE LEARNING CENTER
315 Hudson Street
Hartford, Connecticut 06106

DISTRICT OF COLUMBIA

ADVISORY AND LEARNING EXCHANGE OF THE ASSOCIATES FOR RENEWAL IN EDUCATION
Suite 205
2000 L Street, N.W.
Washington, D.C. 20036

CONVENTION AND JOURNAL PROGRAMS
American Association of Colleges for Teacher Education
One Dupont Circle
Washington, D.C. 20036

CONVENTION AND JOURNAL PROGRAMS
American Educational Research Association
1126 Sixteenth Street, N.W.
Washington, D. C. 20036

CENTER FOR EDUCATIONAL ADVANCEMENT
Presidential Building, Room 900
415 Twelfth Street, N.W.
Washington, D.C. 20004

COUNCIL FOR EDUCATIONAL DEVELOPMENT AND RESEARCH
Suite 206
1518 K Street, N.W.
Washington, D.C. 20005

ERIC CLEARINGHOUSE ON HIGHER EDUCATION
George Washington University
Suite 630
One Dupont Circle
Washington, D.C. 20036

MID-ATLANTIC REGION SPECIAL EDUCATION
INSTRUCTIONAL MATERIALS CENTER
George Washington University
Washington, D.C. 20006

RESEARCH INFORMATION CENTER
Office of Planning, Research and Evaluation
Public Schools of the District of Columbia
415 Twelfth Street, N.W.
Washington, D.C. 20004

TEACHER EDUCATION CENTER, WHITTIER
ELEMENTARY
Fifth and Sheridan Streets, N.W.
Washington, D.C. 20011

FLORIDA

FLORIDA EDUCATIONAL RESOURCES INFORMATION
CENTER
Knott Building
Tallahassee, Florida 32304

PROFESSIONAL EDUCATION LIBRARY
215 West Garden Street
Pensacola, Florida 32501

GEORGIA

ATLANTA TEACHER CORPS CONSORTIUM
Atlanta Instructional Service Center
2930 Forrest Hill Drive
Atlanta, Georgia 30355

CLAYTON COUNTY TEACHER EDUCATION CENTER
Division of Curriculum and Instruction
Georgia State University
Atlanta, Georgia 30303

GEORGIA SOUTHERN CONSORTIUM
Georgia Southern College
Statesboro, Georgia 30458

IDAHO

EDUCATIONAL SERVICE CENTER FOR READING
725 Hazel Avenue
Couer d'Alene, Idaho 83814

TEACHER RENEWAL CENTER
Highland Fallout Shelter
Boise Schools
1207 W. Fort Street
Boise, Idaho 83702

ILLINOIS

CENTER FOR NEW SCHOOLS
Suite 1527
431 S. Dearborn Street
Chicago, Illinois 60605

EDUCATIONAL MEDIA AND INFORMATION SERVICE
Illinois Office of Education
Department for Exceptional Children
1020 South Spring Street
Springfield, Illinois 62706

ERIC CLEARINGHOUSE IN CAREER EDUCATION
Northern Illinois University
204 Gurler School
DeKalb, Illinois 60115

ERIC CLEARINGHOUSE ON EARLY CHILDHOOD EDUCATION
University of Illinois, Urbana-Champaign
805 W. Pennsylvania Avenue
Urbana, Illinois 61801

ERIC CLEARINGHOUSE ON READING AND COMMUNICATION SKILLS
National Council of Teachers of English
1111 Kenyon Road
Urbana, Illinois 61801

INSTRUCTIONAL MATERIALS CENTER
Office of Superintendent of Public Instruction
1020 South Spring Street
Springfield, Illinois 62706

JOLIET TEACHER EDUCATION CENTER
420 N. Raynor Avenue
Joliet, Illinois 60234

INDIANA

CENTER ON EVALUATION DEVELOPMENT
AND RESEARCH
Phi Delta Kappa
Eighth Street and Union Avenue
Bloomington, Indiana 47401

ERIC 'PROBE' COMPUTER SEARCH
Indiana University
Room 30
School of Education
Bloomington, Indiana 47401

SOCIAL STUDIES DEVELOPMENT CENTER
Indiana University
1129 Atwater
Bloomington, Indiana 47401

IOWA

PROJECT INFORMS
Iowa Department of Public Instruction
Educational Media Section
Grimes State Office Building
Des Moines, Iowa 50319

SOUTHWEST IOWA LEARNING RESOURCES CENTER
402 Reed Street
Red Oak, Iowa 51566

KANSAS

KANSAS STATE TELENETWORK
Division of Continuing Education
301 Umberger Hall
Kansas State University
Manhattan, Kansas 66502

PROJECT COMMUNICATE
Kansas State Department of Education
120 East Tenth Street
Topeka, Kansas 66612

SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
University of Kansas
Library - 213 Bailey Hall
Lawrence, Kansas 66044

KENTUCKY

INSTRUCTIONAL MATERIALS REFERENCE CENTER
American Printing House for the Blind
1839 Frankfort Avenue
Louisville, Kentucky 40206

KENTUCKY EDUCATIONAL TELEVISION
Broadcasts for Educators
Commonwealth of Kentucky
600 Cooper Drive
Lexington, Kentucky 40502

KENTUCKY RESEARCH COORDINATING UNIT
152 Taylor Education Building
University of Kentucky
Lexington, Kentucky 40506

LOUISVILLE CONSORTIUM--TEACHER CORPS
Brown Education Center
675 South 4th Street
Louisville, Kentucky 40202

SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
University of Kentucky
730 South Limestone Street
Lexington, Kentucky 40506

MAINE

TEACHER EDUCATION RENEWAL PROGRAM
Unity, Maine 04988

MARYLAND

CENTER FOR RESEARCH ON THE SOCIAL ORGANIZATION OF SCHOOLS
Johns Hopkins University
3505 North Charles Street
Baltimore, Maryland 21218

OFFICE OF LABORATORY EXPERIENCES
College of Educaiton
University of Maryland
College Park, Maryland 20742

MASSACHUSETTS

BUREAU OF EDUCATIONAL INFORMATION SERVICES
Massachusetts Department of Education
112 Tremont Street
Boston, Massachusetts 02111

CAREER EDUCATION DISSEMINATION SERVICES
117 Perry Street
Lowell, Massachusetts 01152

EDUCATION DEVELOPMENT CENTER, INC.
55 Chapel Street
Newton, Massacusetts 02160

GREATER BOSTON TEACHERS CENTER
131 Mt. Auburn Street
Cambridge, Massachusetts 02138

MERRIMACK EDUCATION CENTER
101 Mill Road
Chelmsford, Massachusetts 01124

NETWORK OF INNOVATIVE SCHOOLS
Manufactory
Mechanics Street
Merrimac, Massachusetts 01860

NEW ENGLAND MATERIALS INSTRUCTION CENTER
Boston University
704 Commonwealth Avenue
Boston, Massachusetts 02215

NEW ENGLAND SCHOOL DEVELOPMENT COUNCIL
55 Chapel Street
Newton, Massachusetts 02160

NORTHEAST ACADEMIC SCIENCE INFORMATION CENTER
New England Board of Higher Education
Wellesley, Massachusetts 02181

NORTHEAST REGIONAL MEDIA CENTER FOR THE DEAF
University of Massachusetts
Amherst, Massachusetts 01003

RESOURCE CENTER
Children's Museum
Jamaicaway
Boston, Massachusetts 02130

WORKSHOP FOR LEARNING THINGS, ETC.
5 Bridge Street
Watertown, Massachusetts 02172

MICHIGAN

ERIC CLEARINGHOUSE ON COUNSELING AND PERSONNEL SERVICES
2108 Education Building
University of Michigan
Ann Arbor, Michigan 48104

MICHIGAN STATE REGIONAL TEACHER CENTER
518 Erickson Hall
Michigan State University
East Lansing, Michigan 48823

TEACHER INSERVICE REGIONAL ENRICHMENT CENTER
P.O. Box 2025
1819 E. Milham Avenue
Kalamazoo, Michigan 49003

USOE/MSU INSTRUCTIONAL MATERIALS CENTER FOR HANDICAPPED CHILDREN AND YOUTH
213 Erickson Hall
Michigan State University
East Lansing, Michigan 48823

MINNESOTA

EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL OF THE TWIN CITIES METROPOLITAN AREA
221 Health Service Building
University of Minnesota
St. Paul, Minnesota 55101

MINNESOTA RESEARCH COORDINATING UNIT FOR
VOCATIONAL EDUCATION
125 Peik Hall
University of Minnesota
Minneapolis, Minnesota 55455

MISSOURI

CENTRAL MIDWESTERN REGIONAL EDUCATION
LABORATORY
3120 59th Street
St. Louis, Missouri 63139

LEARNING EXCHANGE
P.O. Box 7087
Kansas City, Missouri 64113

EMILY RICHARDS LEARNING CENTER
4504 Westminster Place
St. Louis, Missouri 63108

NEBRASKA

EDUCATIONAL SERVICE UNIT 10
West Highway 30
Kearney, Nebraska 68847

MIDWEST REGIONAL MEDIA CENTER FOR THE DEAF
University of Nebraska
Lincoln, Nebraska 68508

NEBRASKA RESEARCH COORDINATING UNIT FOR
VOCATIONAL EDUCATION
307 AH - East Campus
University of Nebraska
Lincoln, Nebraska 68503

WEST MAPLE INSTRUCTIONAL MATERIALS CENTER
88th and Maple Street
Omaha, Nebraska 68134

NEVADA

CHURCHILL COUNTY TITLE III CENTER
Churchill County School District
Fallon, Nevada 89406

WESTERN STATE SMALL SCHOOLS PROJECT
State Department of Education
Carson City, Nevada 89701

NEW HAMPSHIRE

INTERSTATE PROJECT 505 INFORMATION EXCHANGE NETWORK
c/o NEPTE
P.O. Box 255
Durham, New Hampshire 03824

NEW ENGLAND PROGRAM FOR TEACHER EDUCATION
Department of Education
State House Annex
Concord, New Hampshire 03301

NEW HAMPSHIRE RESEARCH COORDINATING UNIT
Division of Vocational-Technical Education
State Department of Education
Stickney Avenue
Concord, New Hampshire 03301

TWIN STATE EDUCATIONAL INFORMATION SYSTEM
105 Loudon Road
Concord, New Hampshire

NEW JERSEY

BRANCH OF RESEARCH INFORMATION
225 West State Street
Trenton, New Jersey 08625

EDUCATIONAL IMPROVEMENT CENTER - SOUTH
Glassboro-Woodbury Road
P.O. Box 426
Pitman, New Jersey 08071

ERIC CLEARINGHOUSE ON TESTS, MEASUREMENT, AND EVALUATION
Educational Testing Service
Princeton, New Jersey 08450

ETS PROGRAMS OF CONTINUING EDUCATION
Educational Testing Service
Princeton, New Jersey 08540

RESEARCH DIVISION
New Jersey Education Association
180 West State Street
Trenton, New Jersey 08608

NEW JERSEY OCCUPATIONAL RESEARCH AND DEVELOPMENT RESOURCE CENTER
Occupational Resource Center
Building 871, RMC
Plainfield Avenue
Edison, New Jersey 08817

WEDNESDAY PROGRAM
P.O. Box 711
Princeton Regional Schools
Princeton, New Jersey 08540

NEW MEXICO

ERIC CLEARINGHOUSE ON RURAL EDUCATION AND SMALL SCHOOLS
New Mexico State University
P.O. Box 3AP
Las Cruces, New Mexico 88001

SOUTHWEST REGIONAL MEDIA CENTER FOR THE DEAF
New Mexico State University
P.O. Box 3AW
Las Cruces, New Mexico 88001

LAS VEGAS SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
521 Union Street
Las Vegas, New Mexico 87701

NEW YORK

BAYSHORE - STONY BROOK TEACHER CENTER
143 Suydam Lane
Bayport, Long Island, New York 11705

CREATIVE TEACHING WORKSHOP
45 Suffolk Street
New York, New York 10002

EDUCATIONAL PROGRAMS AND STUDIES INFORMATION SERVICE
Room 330
New York State Education Department
Albany, New York 12224

EPIE INSTITUTE
463 West Street
New York, New York 10014

ERIC CLEARINGHOUSE ON URBAN EDUCATION
Columbia University
Teachers College
P.O. Box 40
525 West 120th Street
New York, New York 10027

SCARSDALE TEACHERS INSTITUTE
Scarsdale High School
Post Road
Scarsdale, New York 10583

SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
New York State Education Department
55 Elk Street
Albany, New York 12224

TEACHERS, INC.
2700 Broadway
New York, New York 10025

WESTINGHOUSE LEARNING CORPORATION
100 Park Avenue
New York, New York 10017

WORKSHOP CENTER FOR OPEN EDUCATION
6 Shepard Hall
City College
140th Street and Convent Avenue
New York, New York 10031

NORTH CAROLINA

APPALACHIAN TRAINING CENTER
Appalachian State University
Boone, North Carolina 28607

CENTER FOR OCCUPATIONAL EDUCATION
North Carolina State University
P.O. Box 5096
Raleigh, North Carolina 27607

NATIONAL LABORATORY FOR HIGHER EDUCATION
Mutual Plaza
Durham, North Carolina 27701

RESEARCH AND INFORMATION CENTER
North Carolina Department of Public Instruction
511 Education Building
Raleigh, North Carolina 17611

ISABELLA WYCHE SCHOOL-CENTER
206 S. Poplar Street
Charlotte, North Carolina 28202

NORTH DAKOTA

CENTER FOR TEACHING AND LEARNING
University of North Dakota
Grand Forks, North Dakota 58201

EPDA TEACHER TRAINING PROJECT
Fargo Public Schools
Fargo, North Dakota 58102

OHIO

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

CLEVELAND CENTER FOR EDUCATIONAL PERSONNEL DEVELOPMENT
Cleveland Board of Education
1380 E. Sixth Street
Cleveland, Ohio 44114

CLEVELAND COMMISSION ON HIGHER EDUCATION
1367 E. Sixth Street
Cleveland, Ohio 44114

ERIC CENTER FOR SCENCE, MATHEMATICS, AND
ENVIRONMENTAL EDUCATION
Ohio State University
1800 Cannon Drive
Columbus, Ohio 43210

/I/D/E/A
Institute for Development of Educational
Activities, Inc.
Suite 300
5335 Far Hills Avenue
Dayton, Ohio 45429

NATIONAL CENTER ON EDUCATIONAL MEDIA AND
MATERIALS FOR THE HANDICAPPED
Ohio State University
220 West Twelfth Avenue
Columbus, Ohio 43210

TEACHER EDUCATION CENTER
210 Teachers College Building
University of Cincinnati
Cincinnati, Ohio 45221

OKLAHOMA

OKLAHOMA COOPERATIVE FOR CLINICAL EXPERIENCE
IN TEACHER EDUCATION
Tulsa Public Schools
P.O. Box 45208
Tulsa, Oklahoma 74145

OREGON

ERIC CLEARINGHOUSE ON EDUCATIONAL MANAGEMENT
University of Oregon
Eugene, Oregon 97403

INSTRUCTIONAL MATERIALS CENTER
172 South First Avenue
Hillsboro, Oregon 97123

NEW DIRECTIONS
Resource Dissemination Center
Oregon Board of Education
942 Lancaster Drive, N.E.
Salem, Oregon 97301

NORTHWEST REGIONAL EDUCATIONAL LABORATORY
Lindsay Building
710 S.W. Second Avenue
Portland, Oregon 97204

NORTHWEST REGIONAL SPECIAL EDUCATION
INSTRUCTIONAL MATERIALS CENTER
University of Oregon
Clinical Services Building
Eugene, Oregon 97403

OTIS - OREGON TOTAL INFORMATION SYSTEM
354 East 40th Street
Eugene, Oregon 97405

TEACHER WORKS, INC.
2136 N.E. 20th Avenue
Portland, Oregon 97212

TEACHING RESEARCH
Todd Hall
Oregon College of Education
Monmouth, Oregon 97631

PENNSYLVANIA

LEARNING RESEARCH AND DEVELOPMENT CENTER
University of Pittsburgh
208 Mineral Industries Building
Pittsburgh, Pennsylvania 15260

PHILADELPHIA TEACHERS CENTER
Philadelphia Public Schools
219 N. Broad Street
Philadelphia, Pennsylvania 19017

REGIONAL IMPROVED TEACHER EDUCATION CENTER
Northwest Tri-County Intermediate Unit
2911 State Street
Erie, Pennsylvania 16508

RESEARCH AND INFORMATION SERVICES FOR
EDUCATION
191 Allendale Road
King of Pressia, Pennsylvania 19406

RESEARCH FOR BETTER SCHOOLS INC.
1700 Market Street
Philadelphia, Pennsylvania 19103

RHODE ISLAND

EDUCATION INFORMATION CENTER
Rhode Island Department of Education
Division of Academic Services
600 Mount Pleasant Avenue
Providence, Rhode Island 02901

RHODE ISLAND TEACHER CENTER
Rhode Island Department of Education
25 Hayes Street
Providence, Rhode Island 02908

SOUTH CAROLINA

PLANNING RESOURCES SECTION
Office of Planning and Dissemination
State Department of Education
1201 Rutledge Building
Columbia, South Carolina 29201

SOUTH DAKOTA

NORTHEAST LEARNING CENTER
Northern State College
Aberdeen, South Dakota 57401

TEACHER CONTINUATION CENTER
Augustana College
Sioux Falls, South Dakota 57101

WESTERN LEARNING CENTER
Black Hills State College
Spearfish, South Dakota 57783

TENNESSEE

SOUTHERN REGIONAL MEDIA CENTER FOR THE DEAF
College of Education
University of Tennessee
Knoxville, Tennessee 39716

TENNESSEE RESEARCH COORDINATING UNIT
909 Mountcastle Street
Knoxville, Tennessee 37916

TEXAS

BIRDIE ALEXANDER TEACHER EDUCATION CENTER
Southern Methodist University
Dallas, Texas 75222

FORT WORTH METROPOLITAN TEACHER CENTER
Fort Worth Public Schools
Fort Worth, Texas 76102

FORT WORTH TEACHER CENTER
College of Education
Texas Christian University
Fort Worth, Texas 76129

TYLER TEACHER CENTER
Austin State University College
PRARIE VIEW TEACHER CENTER BOARD
Education Service Center, Region IV
202 North Loop West
Houston, Texas 77018

REGION I EDUCATION SERVICE CENTER
P.O. Box 307
Edinburg, Texas 78539

REGION XIV EDUCATION SERVICE CENTER
P.O. Box 3235
Abilene, Texas 79604

REGION XIX EDUCATION SERVICE CENTER
P.O. Box 10716
El Paso, Texas 79997

RESEARCH AND DEVELOPMENT CENTER FOR
TEACHER EDUCATION
University of Texas at Austin
Austin, Texas 78712

SAN ANTONIO TEACHER CENTER
Education Service Center, Region XX
1550 N.E. Loop 410
San Antonio, Texas 78209

ASCHER SILBERSTEIN TEACHER EDUCATION CENTER
East Texas University
Dallas, Texas NOZIP

SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
University of Texas
2613 Wichita Street
Austin, Texas 78712

SOUTHWEST EDUCATIONAL DEVELOPMENT LABORATORY
211 East Seventh Street
Austin, Texas 78701

TEXAS INFORMATION SERVICE
6504 Tracor Lane
Austin, Texas 78721

TEXAS OCCUPATIONAL RESEARCH COORDINATING UNIT
Texas Education Agency
201 East Eleventh Street
Capitol Station
Austin, Texas 78701

UTAH

INSTRUCTIONAL MATERIALS CENTER
440 East First South
Salt Lake City, Utah 84111

INSTRUCTIONAL SERVICE CENTER, BUREAU OF INDIAN AFFAIRS
P.O. Box 66
Brigham City, Utah 84302

SOUTHWEST EDUATIONAL DEVELOPMENT CENTER
1552 West 200 North, P.O. Box 725
Cedar City, Utah 84720

TECHNICAL ASSISTANCE INFORMATION SERVICE
Utah State Board of Education
1400 University Club Building
Salt Lake City, Utah 84111

UTAH RESEARCH COORDINATING UNIT FOR
VOCATIONAL AND TECHNICAL EDUCATION
1670 University Club Building
Salt Lake City, Utah 84111

VERMONT

ALTERNATIVE EDUCATION PROJECT
Hinesburg Central School
Hinesburg, Vermont 05461

CURRICULUM MATERIALS WORKSHOP
Brattleboro Teacher Resource Center
Green Street School
Brattleboro, Vermont 05301

A PLACE TO LEARN
Waterman Building
University of Vermont
Burlington, Vermont 05401

VIRGINIA

CEC INFORMATION CENTER ON EXCEPTIONAL
CHILDREN
Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22091

EDUCATIONAL RESEARCH SERVICE
1815 North Fort Meyer Drive
Arlington, Virgnia 22209

ERIC CLEARINGHOUSE ON LANGUAGES AND
LINGUISTICS
Center for Applied Linguistics
1611 North Kent STreet
Arlington, Virginia 22209

NATIONAL ACADEMY FOR SCHOOL EXECUTIVES
American Association of School
Administrators
1801 N. Moore Street
Arlington, Virginia 22209

PROJECT HELPING HAND, INSTRUCTIONAL MATERIALS CENTER
P.O. Box 929, Giles Avenue
Dublin, Virginia 24084

RESEARCH AND INFORMATION CENTER
10700 Page Avenue
Fairfax, Virginia 22030

SPECIAL EDUCATION IMC/RMC NETWORK
Suite 921
1411 South Jefferson Davis Highway
Arlington, Virginia 22202

WASHINGTON

RESEARCH COORDINATING UNIT
216 Old Capitol Building
Olympia, Washington 98504

WEST VIRGINIA

APPALACHIA EDUCATIONAL LABORATORY
P.O. Box 1348
Charleston, West Virginia 25325

CENTER FOR CREATIVE EDUCATIONAL ADVANCEMENT
1210 13th Street
Parkersburg, West Virginia 26101

HARRISON COUNTY TEACHER EDUCATION CENTER
301 W. Main Street
Clarksburg, West Virginia 26301

KANAWHA COUNTY TEACHER CENTER
200 Elizabeth Street
Charleston, West Virginia 25311

NORTHERN APPALACHIA TEACHER CENTER
690 FTA, College of Human Resources and Education
West Virginia University
Morgantown, West Virginia 26505

PERSONALIZING EDUCATIONAL PROGRAMS
1899 James River Turnpike
Huntington, West Virginia 25701

WEST VIRGINIA RESEARCH COORDINATING UNIT FOR VOCATIONAL EDUCATION
Marshall University
Huntington, West Virginia 25701

WISCONSIN

EDUCATIONAL TELEPHONE NETWORK/ SUBSIDIARY COMMUNICATIONS NETWORK
University Extension
University of Wisconsin
432 N. Lake Street
Madison, Wisconsin 53706

INFORMATION RETRIEVAL CENTER - WIRE
Wisconsin Department of Public Instruction
126 Langdon Street
Madison, Wisconsin 53702

SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
University of Wisconsin
415 West Gilman Street
Madison, Wisconsin 53706

WISCONSIN RESEARCH AND DEVELOPMENT CENTER FOR COGNITIVE LEARNING
University of Wisconsin
1025 West Johnson Street
Madison, Wisconsin 53706

APPENDIX B: ADDITIONAL TABLES

The 88 tables presented in this appendix are discussed in Chapter 4. They continue the detailed breakdown of "service" and "outcome" responses begun in Tables 4.5 - 4.6.

TABLE 4.7 Frequency of use or receipt of "individualized bibliographies or lists" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	237	146	65	100	28	106	682
	60.6	47.1	49.6	49.0	45.9	53.8	52.7
Less than Monthly	135	113	30	77	24	64	443
	34.5	36.5	22.9	37.7	39.3	32.5	34.2
Monthly or More	19	51	36	27	9	27	169
	4.9	16.5	27.5	13.2	14.8	13.7	13.1
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 58.50452 with 10 degrees of freedom: probability = .00

TABLE 4.8 Frequency of use or receipt of "individualized bibliographies or lists" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	187	191	117	67	82	38	682
	60.1	54.1	57.4	48.6	38.3	51.4	52.7
Less than Monthly	100	125	68	48	73	29	443
	32.2	35.4	33.3	34.8	34.1	39.2	34.2
Monthly or More	24	37	19	23	59	7	169
	7.7	10.5	9.3	16.7	27.6	9.5	13.1
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 61.62448 with 10 degrees of freedom: probability = .00

TABLE 4.9 Frequency of use or receipt of "pre-packaged compilations of abstracts" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	274	163	78	96	34	106	751
	70.1	52.6	59.5	47.1	55.7	53.8	58.0
Less than Monthly	103	106	28	87	17	66	407
	26.3	34.2	21.4	42.6	27.9	33.5	31.5
Monthly or More	14	41	25	21	10	25	136
	3.6	13.2	19.1	10.3	16.4	12.7	10.5
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 65.27438 with 10 degrees of freedom: probability = .00

TABLE 4.10 Frequency of use or receipt of "pre-packaged compilations of abstracts" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	191	213	136	77	97	37	751
	61.4	60.3	66.7	55.8	45.3	50.0	58.0
Less than Monthly	103	103	52	48	73	28	407
	33.1	29.2	25.5	34.8	34.1	37.8	31.5
Monthly or More	17	37	16	13	44	9	136
	5.5	10.5	7.8	9.4	20.6	12.2	10.5
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 45.36400 with 10 degrees of freedom: probability = .00

TABLE 4.11 Frequency of use or receipt of "individualized compilations of abstracts" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	266	166	71	94	24	73	694
	68.0	53.5	54.2	46.1	39.3	37.1	53.6
Less than Monthly	115	98	29	84	24	91	441
	29.4	31.6	22.1	41.2	39.3	46.2	34.1
Monthly or More	10	46	31	26	13	33	159
	2.6	14.8	23.7	12.7	21.3	16.8	12.3
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 103.07365 with 10 degrees of freedom: probability = .00

TABLE 4.12 Frequency of use or receipt of "individualized compilations of abstracts" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	193	212	114	58	79	38	694
	62.1	60.1	55.9	42.0	36.9	51.4	53.6
Less than Monthly	100	102	73	59	78	29	441
	32.2	28.9	35.8	42.8	36.4	39.2	34.1
Monthly or More	18	39	17	21	57	7	159
	5.8	11.0	8.3	15.2	26.6	9.5	12.3
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 80.00304 with 10 degrees of freedom: probability = .00

TABLE 4.13 Frequency of use or receipt of "pre-packaged selections of documents" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	299	191	86	124	41	128	869
	76.5	61.6	65.6	60.8	67.2	65.0	67.2
Less than Monthly	75	90	23	66	14	58	326
	19.2	29.0	17.6	32.4	23.0	29.4	25.2
Monthly or More	17	29	22	14	6	11	99
	4.3	9.4	16.8	6.9	9.8	5.6	7.7
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 46.73775 with 10 degrees of freedom: probability = .00

TABLE 4.14 Frequency of use or receipt of "pre-packaged selections of documents" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	224	247	148	88	118	44	869
	72.0	70.0	72.5	63.8	55.1	59.5	67.2
Less than Monthly	72	79	44	37	68	26	326
	23.2	22.4	21.6	26.8	31.8	35.1	25.2
Monthly or More	15	27	12	13	28	4	99
	4.8	7.6	5.9	9.4	13.1	5.4	7.7
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 30.69682 with 10 degrees of freedom: probability = .00

TABLE 4.15 Frequency of use or receipt of "individualized selections of documents" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	267	137	60	94	32	103	693
	68.3	44.2	45.8	46.1	52.5	52.3	53.6
Less than Monthly	100	120	39	80	18	64	421
	25.6	38.7	29.8	39.2	29.5	32.5	32.5
Monthly or More	24	53	32	30	11	30	180
	6.1	17.1	24.4	14.7	18.0	15.2	13.9
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 68.06464 with 10 degrees of freedom: probability = .00

TABLE 4.16 Frequency of use or receipt of "individualized selections of documents" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	182	194	139	63	83	32	693
	58.5	55.0	68.1	45.7	38.8	43.2	53.6
Less than Monthly	102	114	48	50	72	35	421
	32.8	32.3	23.5	36.2	33.6	47.3	32.5
Monthly or More	27	45	17	25	59	7	180
	8.7	12.7	8.3	18.1	27.6	9.5	13.9
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 74.70302 with 10 degrees of freedom: probability = .00

TABLE 4.17 Frequency of use or receipt of "brochures describing services" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	212	117	47	92	29	104	601
	54.2	37.7	35.9	45.1	47.5	52.8	46.4
Less than Monthly	143	131	48	78	26	68	494
	36.6	42.3	36.6	38.2	42.6	34.5	38.2
Monthly or More	36	62	36	34	6	25	199
	9.2	20.0	27.5	16.7	9.8	12.7	15.4
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 46.63130 with 10 degrees of freedom: probability = .00

TABLE 4.18 Frequency of use or receipt of "brochures describing services" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	158	164	97	66	85	31	601
	50.8	46.5	47.5	47.8	39.7	41.9	46.4
Less than Monthly	109	132	82	51	90	30	494
	35.0	37.4	40.2	37.0	42.1	40.5	38.2
Monthly or More	44	57	25	21	39	13	199
	14.1	16.1	12.3	15.2	18.2	17.6	15.4
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 8.97048 with 10 degrees of freedom: not significant

TABLE 4.19 Frequency of use or receipt of "newsletters, bulletins, etc. (news and notes)" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	199	122	35	98	35	98	587
	50.9	39.4	26.7	48.0	57.4	49.7	45.4
Less than Monthly	104	79	32	46	12	43	316
	26.6	25.5	24.4	22.5	19.7	21.8	24.4
Monthly or More	88	109	64	60	14	56	391
	22.5	35.2	48.9	29.4	23.0	28.4	30.2
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 47.12271 with 10 degrees of freedom: probability = .00

TABLE 4.20 Frequency of use or receipt of "newsletters, bulletins, etc. (news and notes)" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	153	158	92	71	84	29	587
	49.2	44.8	45.1	51.4	39.3	39.2	45.4
Less than Monthly	69	90	58	27	47	25	316
	22.2	25.5	28.4	19.6	22.0	33.8	24.4
Monthly or More	89	105	54	40	83	20	391
	28.6	29.7	26.5	29.0	38.8	27.0	30.2
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 17.96841 with 10 degrees of freedom: probability = .05

TABLE 4.21 Frequency of use or receipt of "magazines, journals, etc. (substantive)" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	286	220	98	150	45	136	935
	73.1	71.0	74.8	73.5	73.8	69.0	72.3
Less than Monthly	59	50	15	35	8	35	202
	15.1	16.1	11.5	17.2	13.1	17.8	15.6
Monthly or More	46	40	18	19	8	26	157
	11.8	12.9	13.7	9.3	13.1	13.2	12.1
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 5.33963 with 10 degrees of freedom: not significant

TABLE 4.22 Frequency of use or receipt of "magazines, journals, etc. (substantive)" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	224	263	146	104	150	48	935
	72.0	74.5	71.6	75.4	70.1	64.9	72.3
Less than Monthly	45	55	34	15	40	13	202
	14.5	15.6	16.7	10.9	18.7	17.6	15.6
Monthly or More	42	35	24	19	24	13	157
	13.5	9.9	11.8	13.8	11.2	17.6	12.1
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 9.21065 with 10 degrees of freedom: not significant

TABLE 4.23 Frequency of use or receipt of "papers, shorter than monograph length" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	295	195	92	131	43	141	897
	75.4	62.9	70.2	64.2	70.5	71.6	69.3
Less than Monthly	72	79	27	55	10	44	287
	18.4	25.5	20.6	27.0	16.4	22.3	22.2
Monthly or More	24	36	12	18	8	12	110
	6.1	11.6	9.2	8.8	13.1	6.1	8.5
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 21.15878 with 10 degrees of freedom: probability = .02

TABLE 4.24 Frequency of use or receipt of "papers, shorter than monograph length" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	225	245	144	88	148	47	897
	72.3	69.4	70.6	63.8	69.2	63.5	69.3
Less than Monthly	60	82	47	39	41	18	287
	19.3	23.2	23.0	28.3	19.2	24.3	22.2
Monthly or More	26	26	13	11	25	9	110
	8.4	7.4	6.4	8.0	11.7	12.2	8.5
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 11.57024 with 10 degrees of freedom: not significant

TABLE 4.25 Frequency of use or receipt of "monographs or books" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	334	241	112	167	49	161	1064
	85.4	77.7	85.5	81.9	80.3	81.7	82.2
Less than Monthly	46	59	13	30	10	30	188
	11.8	19.0	9.9	14.7	16.4	15.2	14.5
Monthly or More	11	10	6	7	2	6	42
	2.8	3.2	4.6	3.4	3.3	3.0	3.2
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 10.95318 with 10 degrees of freedom: not significant

TABLE 4.26 Frequency of use or receipt of "monographs or books" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	259	302	166	116	167	54	1064
	83.3	85.6	81.4	84.1	78.0	73.0	82.2
Less than Monthly	40	45	31	17	38	17	188
	12.9	12.7	15.2	12.3	17.8	23.0	14.5
Monthly or More	12	6	7	5	9	3	42
	3.9	1.7	3.4	3.6	4.2	4.1	3.2
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 12.67530 with 10 degrees of freedom: not significant

TABLE 4.27 Frequency of use or receipt of "print materials for classroom use" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	293	242	108	154	54	159	1010
	74.9	78.1	82.4	75.5	88.5	80.7	78.1
Less than Monthly	64	45	12	36	6	28	191
	16.4	14.5	9.2	17.6	9.8	14.2	14.8
Monthly or More	34	23	11	14	1	10	93
	8.7	7.4	8.4	6.9	1.6	5.1	7.2
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 13.08316 with 10 degrees of freedom: not significant

TABLE 4.28 Frequency of use or receipt of "print materials for classroom use" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	215	279	169	112	177	58	1010
	69.1	79.0	82.8	81.2	82.7	78.4	78.1
Less than Monthly	62	46	29	18	23	13	191
	19.9	13.0	14.2	13.0	10.7	17.6	14.8
Monthly or More	34	28	6	8	14	3	93
	10.9	7.9	2.9	5.8	6.5	4.1	7.2
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 26.95093 with 10 degrees of freedom: probability = .00

TABLE 4.29 Frequency of use or receipt of "films, other media for inservice training" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	329	245	106	166	54	175	1075
	84.1	79.0	80.9	81.4	88.5	88.8	83.1
Less than Monthly	44	41	19	28	5	21	158
	11.3	13.2	14.5	13.7	8.2	10.7	12.2
Monthly or More	18	24	6	10	2	1	61
	4.6	7.7	4.6	4.9	3.3	0.5	4.7
Column	391	310	131	204	61	197	1294
Total	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 18.22835 with 10 degrees of freedom: probability = .05

TABLE 4.30 Frequency of use or receipt of "films, other media for inservice training" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	245	297	184	116	172	61	1075
	78.8	84.1	90.2	84.1	80.4	82.4	83.1
Less than Monthly	41	41	14	17	36	9	158
	13.2	11.6	6.9	12.3	16.8	12.2	12.2
Monthly or More	25	15	6	5	6	4	61
	8.0	4.2	2.9	3.6	2.8	5.4	4.7
Column	311	353	204	138	214	74	1294
Total	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 21.93642 with 10 degrees of freedom: probability = .01

TABLE 4.31 Frequency of use or receipt of "teleconferences, etc., for inservice training" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	368	288	126	194	58	182	1216
	94.1	92.9	96.2	95.1	95.1	92.4	94.0
Less than Monthly	21	16	3	7	3	12	62
	5.4	5.2	2.3	3.4	4.9	6.1	4.8
Monthly or More	2	6	2	3	0	3	16
	0.5	1.9	1.5	1.5	0.0	1.5	1.2
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 7.70410 with 10 degrees of freedom: not significant

TABLE 4.32 Frequency of use or receipt of "teleconferences, etc., for inservice training" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	292	337	193	126	198	70	1216
	93.9	95.5	94.6	91.3	92.5	94.6	94.0
Less than Monthly	14	14	10	9	13	2	62
	4.5	4.0	4.9	6.5	6.1	2.7	4.8
Monthly or More	5	2	1	3	3	2	16
	1.6	0.6	0.5	2.2	1.4	2.7	1.2
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 7.94320 with 10 degrees of freedom: not significant

TABLE 4.33 Frequency of use or receipt of "radio broadcasts for educators" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	370	290	127	192	60	184	1223
	94.6	93.5	96.9	94.1	98.4	93.4	94.5
Less than Monthly	11	14	3	7	1	11	47
	2.8	4.5	2.3	3.4	1.6	5.6	3.6
Monthly or More	10	6	1	5	0	2	24
	2.6	1.9	0.8	2.5	0.0	1.0	1.9
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 9.19610 with 10 degrees of freedom: not significant

TABLE 4.34 Frequency of use or receipt of "radio broadcasts for educators" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	290	337	197	130	200	69	1223
	93.2	95.5	96.6	94.2	93.5	93.2	94.5
Less than Monthly	9	11	6	8	9	4	47
	2.9	3.1	2.9	5.8	4.2	5.4	3.6
Monthly or More	12	5	1	0	5	1	24
	3.9	1.4	0.5	0.0	2.3	1.4	1.9
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 15.90059 with 10 degrees of freedom: not significant

TABLE 4.35 Frequency of use or receipt of "television broadcasts for educators" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	340	286	127	191	60	183	1187
	87.0	92.3	96.9	93.6	98.4	92.9	91.7
Less than Monthly	25	14	2	7	1	12	61
	6.4	4.5	1.5	3.4	1.6	6.1	4.7
Monthly or More	26	10	2	6	0	2	46
	6.6	3.2	1.5	2.9	0.0	1.0	3.6
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 27.79152 with 10 degrees of freedom: probability = .00

TABLE 4.36 Frequency of use or receipt of "television broadcasts for educators" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	261	333	196	129	200	68	1187
	83.9	94.3	96.1	93.5	93.5	91.9	91.7
Less than Monthly	21	13	7	8	10	2	61
	6.8	3.7	3.4	5.8	4.7	2.7	4.7
Monthly or More	29	7	1	1	4	4	46
	9.3	2.0	0.5	0.7	1.9	5.4	3.6
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 50.59425 with 10 degrees of freedom: probability = .00

TABLE 4.37 Frequency of use or receipt of "media materials for classroom use" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	319	259	109	174	56	177	1094
	81.6	83.5	83.2	85.3	91.8	89.8	84.5
Less than Monthly	35	36	8	19	5	13	116
	9.0	11.6	6.1	9.3	8.2	6.6	9.0
Monthly or More	37	15	14	11	0	7	84
	9.5	4.8	10.7	5.4	0.0	3.6	6.5
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 23.56888 with 10 degrees of freedom: probability = .00

TABLE 4.38 Frequency of use or receipt of "media materials for classroom use" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	247	304	178	120	183	62	1094
	79.4	86.1	87.3	87.0	85.5	83.8	84.5
Less than Monthly	24	28	20	14	23	7	116
	7.7	7.9	9.8	10.1	10.7	9.5	9.0
Monthly or More	40	21	6	4	8	5	84
	12.9	5.9	2.9	2.9	3.7	6.8	6.5
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 32.29758 with 10 degrees of freedom: probability = .00

TABLE 4.39 Frequency of use or receipt of "correspondence answering questions, etc." by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	277	162	79	120	43	122	803
	70.8	52.3	60.3	58.8	70.5	61.9	62.1
Less than Monthly	77	70	22	53	8	43	273
	19.7	22.6	16.8	26.0	13.1	21.8	21.1
Monthly or More	37	78	30	31	10	32	218
	9.5	25.2	22.9	15.2	16.4	16.2	16.8
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 45.41078 with 10 degrees of freedom: probability = .00

TABLE 4.40 Frequency of use or receipt of "correspondence answering questions, etc." by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	205	209	137	81	122	49	803
	65.9	59.2	67.2	58.7	57.0	66.2	62.1
Less than Monthly	60	93	38	36	33	13	273
	19.3	26.3	18.6	26.1	15.4	17.6	21.1
Monthly or More	46	51	29	21	59	12	218
	14.8	14.4	14.2	15.2	27.6	16.2	16.8
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 32.07884 with 10 degrees of freedom: probability = .00

TABLE 4.41 Frequency of use or receipt of "in-person question answering, etc." by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	302	189	92	137	44	133	897
	77.2	61.0	70.2	67.2	72.1	67.5	69.3
Less than Monthly	68	64	16	40	8	34	230
	17.4	20.6	12.2	19.6	13.1	17.3	17.8
Monthly or More	21	57	23	27	9	30	167
	5.4	18.4	17.6	13.2	14.8	15.2	12.9
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 39.49667 with 10 degrees of freedom: probability = .00

TABLE 4.42 Frequency of use or receipt of "in-person question answering, etc." by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	227	248	157	91	123	51	897
	73.0	70.3	77.0	65.9	57.5	68.9	69.3
Less than Monthly	50	74	27	28	33	18	230
	16.1	21.0	13.2	20.3	15.4	24.3	17.8
Monthly or More	34	31	20	19	58	5	167
	10.9	8.8	9.8	13.8	27.1	6.8	12.9
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 57.53862 with 10 degrees of freedom: probability = .00

TABLE 4.43 Frequency of use or receipt of "demonstrations of practices, skills, etc." by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	337	236	106	159	53	161	1052
	86.2	76.1	80.9	77.9	86.9	81.7	81.3
Less than Monthly	45	64	23	37	8	31	208
	11.5	20.6	17.6	18.1	13.1	15.7	16.1
Monthly or More	9	10	2	8	0	5	34
	2.3	3.2	1.5	3.9	0.0	2.5	2.6
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 16.95137 with 10 degrees of freedom: probability = .07

TABLE 4.44 Frequency of use or receipt of "demonstrations of practices, skills, etc." by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	255	300	171	116	151	59	1052
	82.0	85.0	83.8	84.1	70.6	79.7	81.3
Less than Monthly	45	49	29	19	54	12	208
	14.5	13.9	14.2	13.8	25.2	16.2	16.1
Monthly or More	11	4	4	3	9	3	34
	3.5	1.1	2.0	2.2	4.2	4.1	2.6
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 24.60887 with 10 degrees of freedom: probability = .00

TABLE 4.45 Frequency of use or receipt of "convention, conference presentations" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	311	216	99	149	54	145	974
	79.5	69.7	75.6	73.0	88.5	73.6	75.3
Less than Monthly	73	88	30	51	7	45	294
	18.7	28.4	22.9	25.0	11.5	22.8	22.7
Monthly or More	7	6	2	4	0	7	26
	1.8	1.9	1.5	2.0	0.0	3.6	2.0
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 18.75627 with 10 degrees of freedom: probability = .04

TABLE 4.46 Frequency of use or receipt of "convention, conference presentations" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	235	275	154	113	140	57	974
	75.6	77.9	75.5	81.9	65.4	77.0	75.3
Less than Monthly	71	74	44	21	68	16	294
	22.8	21.0	21.6	15.2	31.8	21.6	22.7
Monthly or More	5	4	6	4	6	1	26
	1.6	1.1	2.9	2.9	2.8	1.4	2.0
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 19.55774 with 10 degrees of freedom: probability = .03

TABLE 4.47 Frequency of use or receipt of "classes, workshops, seminars" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	300	237	100	154	54	157	1002
	76.7	76.5	76.3	75.5	88.5	79.7	77.4
Less than Monthly	73	57	28	41	7	33	239
	18.7	18.4	21.4	20.1	11.5	16.8	18.5
Monthly or More	18	16	3	9	0	7	53
	4.6	5.2	2.3	4.4	0.0	3.6	4.1
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 8.95232 with 10 degrees of freedom: not significant

TABLE 4.48 Frequency of use or receipt of "classes, workshops, seminars" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	230	281	166	107	157	61	1002
	74.0	79.6	81.4	77.5	73.4	82.4	77.4
Less than Monthly	62	59	32	24	51	11	239
	19.9	16.7	15.7	17.4	23.8	14.9	18.5
Monthly or More	19	13	6	7	6	2	53
	6.1	3.7	2.9	5.1	2.8	2.7	4.1
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 12.98539 with 10 degrees of freedom: not significant

TABLE 4.49 Frequency of use or receipt of "group consultations or technical assistance" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	344	242	105	165	53	161	1070
	88.0	78.1	80.2	80.9	86.9	81.7	82.7
Less than Monthly	37	44	22	30	7	23	163
	9.5	14.2	16.8	14.7	11.5	11.7	12.6
Monthly or More	10	24	4	9	1	13	61
	2.6	7.7	3.1	4.4	1.6	6.6	4.7
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 22.28198 with 10 degrees of freedom: probability = .01

TABLE 4.50 Frequency of use or receipt of "group consultations or technical assistance" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	255	303	171	117	162	62	1070
	82.0	85.8	83.8	84.8	75.7	83.8	82.7
Less than Monthly	35	43	27	13	35	10	163
	11.3	12.2	13.2	9.4	16.4	13.5	12.6
Monthly or More	21	7	6	8	17	2	61
	6.8	2.0	2.9	5.8	7.9	2.7	4.7
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 21.33498 with 10 degrees of freedom: probability = .01

TABLE 4.51 Frequency of use or receipt of "individual consultations or technical assistance" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	335	210	95	149	46	142	977
	85.7	67.7	72.5	73.0	75.4	72.1	75.5
Less than Monthly	42	63	23	38	8	35	209
	10.7	20.3	17.6	18.6	13.1	17.8	16.2
Monthly or More	14	37	13	17	7	20	108
	3.6	11.9	9.9	8.3	11.5	10.2	8.3
Column	391	310	131	204	61	197	1294
Total	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 37.78436 with 10 degrees of freedom: probability = .00

TABLE 4.52 Frequency of use or receipt of "individual consultations or technical assistance" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	244	281	158	101	137	56	977
	78.5	79.6	77.5	73.2	64.0	75.7	75.5
Less than Monthly	45	55	34	21	40	14	209
	14.5	15.6	16.7	15.2	18.7	18.9	16.2
Monthly or More	22	17	12	16	37	4	108
	7.1	4.8	5.9	11.6	17.3	5.4	8.3
Column	311	353	204	138	214	74	1294
Total	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 37.39232 with 10 degrees of freedom: probability = .00

TABLE 4.53 Frequency of use or receipt of "other services (respondent's option)" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	386	298	127	197	61	190	1259
	98.7	96.1	96.9	96.6	100.0	96.4	97.3
Less than Monthly	4	7	3	6	0	4	24
	1.0	2.3	2.3	2.9	0.0	2.0	1.9
Monthly or More	1	5	1	1	0	3	11
	0.3	1.6	0.8	0.5	0.0	1.5	0.9
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 10.16129 with 10 degrees of freedom: not significant

TABLE 4.54 Frequency of use or receipt of "other services (respondent's option)" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	302	342	199	135	208	73	1259
	97.1	96.9	97.5	97.8	97.2	98.6	97.3
Less than Monthly	5	9	3	2	4	1	24
	1.6	2.5	1.5	1.4	1.9	1.4	1.9
Monthly or More	4	2	2	1	2	0	11
	1.3	0.6	1.0	0.7	0.9	0.0	0.9
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 3.17682 with 10 degrees of freedom: not significant

TABLE 4.55 Linkage services "increased my general knowledge of the field of education" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	104	64	37	39	16	52	312
	26.6	20.6	28.2	19.1	26.2	26.4	24.1
Somewhat	161	107	35	87	19	67	476
	41.2	34.5	26.7	42.6	31.1	34.0	36.8
Very Much	126	139	59	78	26	78	506
	32.2	44.8	45.0	38.2	42.6	39.6	39.1
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 23.82684 with 10 degrees of freedom: probability = .00

TABLE 4.56 Linkage services "increas[illegible] my general knowledge of the field of education" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	68	86	58	39	43	18	312
	21.9	24.4	28.4	28.3	20.1	24.3	24.1
Somewhat	118	136	70	51	70	31	476
	37.9	38.5	34.3	37.0	32.7	41.9	36.8
Very Much	125	131	76	48	101	25	506
	40.2	37.1	37.3	34.8	47.2	33.8	39.1
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 12.30343 with 10 degrees of freedom: not significant

TABLE 4.57 Linkage services "gave me new concepts for approaching my work" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	111	91	39	53	27	67	388
	28.4	29.4	29.8	26.0	44.3	34.0	30.0
Somewhat	137	87	39	67	16	59	405
	35.0	28.1	29.8	32.8	26.2	29.9	31.3
Very Much	143	132	53	84	18	71	501
	36.6	42.6	40.5	41.2	29.5	36.0	38.7
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 14.11084 with 10 degrees of freedom: not significant

TABLE 4.58 Linkage services "gave me new concepts for approaching my work" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	76	94	71	48	71	28	388
	24.4	26.6	34.8	34.8	33.2	37.8	30.0
Somewhat	96	126	65	38	57	23	405
	30.9	35.7	31.9	27.5	26.6	31.1	31.3
Very Much	139	133	68	52	86	23	501
	44.7	37.7	33.3	37.7	40.2	31.1	38.7
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 19.50493 with 10 degrees of freedom: probability = .03

TABLE 4.59 Linkage services "gave me new skills for doing my work" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	169	117	55	77	36	90	544
	43.2	37.7	42.0	37.7	59.0	45.7	42.0
Somewhat	118	102	37	71	15	53	396
	30.2	32.9	28.2	34.8	24.6	26.9	30.6
Very Much	104	91	39	56	10	54	354
	26.6	29.4	29.8	27.5	16.4	27.4	27.4
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 14.26164 with 10 degrees of freedom: not significant

TABLE 4.60 Linkage services "gave me new skills for doing my work" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	114	148	98	62	88	34	544
	36.7	41.9	48.0	44.9	41.1	45.9	42.0
Somewhat	87	117	55	47	67	23	396
	28.0	33.1	27.0	34.1	31.3	31.1	30.6
Very Much	110	88	51	29	59	17	354
	35.4	24.9	25.0	21.0	27.6	23.0	27.4
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 18.41373 with 10 degrees of freedom: probability = .04

TABLE 4.61 Linkage services "helped me solve a problem related to my work" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	137	59	39	39	16	47	337
	35.0	19.0	29.8	19.1	26.2	23.9	26.0
Somewhat	109	86	41	60	16	55	367
	27.9	27.7	31.3	29.4	26.2	27.9	28.4
Very Much	145	165	51	105	29	95	590
	37.1	53.2	38.9	51.5	47.5	48.2	45.6
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 36.81966 with 10 degrees of freedom: probability = .00

TABLE 4.62 Linkage services "helped me solve a problem related to my work" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	70	105	71	32	37	22	337
	22.5	29.7	34.8	23.2	17.3	29.7	26.0
Somewhat	107	86	52	39	61	22	367
	34.4	24.4	25.5	28.3	28.5	29.7	28.4
Very Much	134	162	81	67	116	30	590
	43.1	45.9	39.7	48.6	54.2	40.5	45.6
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 29.26192 with 10 degrees of freedom: probability = .00

TABLE 4.63 Linkage services "provided, or led me to, new materials for my work" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	93	68	25	38	12	43	279
	23.8	21.9	19.1	18.6	19.7	21.8	21.6
Somewhat	101	63	28	45	14	44	295
	25.8	20.3	21.4	22.1	23.0	22.3	22.8
Very Much	197	179	78	121	35	110	720
	50.4	57.7	59.5	59.3	57.4	55.8	55.6
Column	391	310	131	204	61	197	1294
Total	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 7.88289 with 10 degrees of freedom: not significant

TABLE 4.64 Linkage services "provided, or led me to, new materials for my work" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	68	83	41	26	43	18	279
	21.9	23.5	20.1	18.8	20.1	24.3	21.6
Somewhat	71	76	46	39	45	18	295
	22.8	21.5	22.5	28.3	21.0	24.3	22.8
Very Much	172	194	117	73	126	38	720
	55.3	55.0	57.4	52.9	58.9	51.4	55.6
Column	311	353	204	138	214	74	1294
Total	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 5.19767 with 10 degrees of freedom: not significant

TABLE 4.65 Linkage services "increased my awareness of new educational practices" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	125	76	37	52	20	76	386
	32.0	24.5	28.2	25.5	32.8	38.6	29.8
Somewhat	130	88	33	67	24	48	390
	33.2	28.4	25.2	32.8	39.3	24.4	30.1
Very Much	136	146	61	85	17	73	518
	34.8	47.1	46.6	41.7	27.9	37.1	40.0
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 27.96872 with 10 degrees of freedom: probability = .00

TABLE 4.66 Linkage services "increased my awareness of new educational practices" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	83	102	75	42	61	23	386
	26.7	28.9	36.8	30.4	28.5	31.1	29.8
Somewhat	98	100	59	43	64	26	390
	31.5	28.3	28.9	31.2	29.9	35.1	30.1
Very Much	130	151	70	53	89	25	518
	41.8	42.8	34.3	38.4	41.6	33.8	40.0
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 9.46185 with 10 degrees of freedom: not significant

TABLE 4.67 Linkage services "helped me identify new sources of assistance for improving my work" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	120	85	37	56	23	68	389
	30.7	27.4	28.2	27.5	37.7	34.5	30.1
Somewhat	127	90	33	58	17	41	366
	32.5	29.0	25.2	28.4	27.9	20.8	28.3
Very Much	144	135	61	90	21	88	539
	36.8	43.5	46.6	44.1	34.4	44.7	41.7
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 15.40125 with 10 degrees of freedom: not significant

TABLE 4.68 Linkage services "helped me identify new sources of assistance for improving my work" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	93	99	62	46	62	27	389
	29.9	28.0	30.4	33.3	29.0	36.5	30.1
Somewhat	98	107	51	37	52	21	366
	31.5	30.3	25.0	26.8	24.3	28.4	28.3
Very Much	120	147	91	55	100	26	539
	38.6	41.6	44.6	39.9	46.7	35.1	41.7
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 9.13883 with 10 degrees of freedom: not significant

TABLE 4.69 Linkage services "made me more satisfied with something I was already doing" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	182	128	66	90	27	109	602
	46.5	41.3	50.4	44.1	44.3	55.3	46.5
Somewhat	121	116	39	69	19	45	409
	30.9	37.4	29.8	33.8	31.1	22.8	31.6
Very Much	88	66	26	45	15	43	283
	22.5	21.3	19.8	22.1	24.6	21.8	21.9
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 15.03979 with 10 degrees of freedom: not significant

TABLE 4.70 Linkage services "made me more satisfied with something I was already doing" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	129	160	111	68	101	33	602
	41.5	45.3	54.4	49.3	47.2	44.6	46.5
Somewhat	99	120	56	44	64	26	409
	31.8	34.0	27.5	31.9	29.9	35.1	31.6
Very Much	83	73	37	26	49	15	283
	26.7	20.7	18.1	18.8	22.9	20.3	21.9
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 12.68828 with 10 degrees of freedom: not significant

TABLE 4.71 Linkage services "made me dissatisfied with something I was already doing" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	249	191	82	128	44	141	835
	63.7	61.6	62.6	62.7	72.1	71.6	64.5
Somewhat	116	95	37	67	16	46	377
	29.7	30.6	28.2	32.8	26.2	23.4	29.1
Very Much	26	24	12	9	1	10	82
	6.6	7.7	9.2	4.4	1.6	5.1	6.3
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 12.89385 with 10 degrees of freedom: not significant

TABLE 4.72 Linkage services "made me dissatisfied with something I was already doing" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	193	227	144	90	133	48	835
	62.1	64.3	70.6	65.2	62.1	64.9	64.5
Somewhat	91	103	51	41	68	23	377
	29.3	29.2	25.0	29.7	31.8	31.1	29.1
Very Much	27	23	9	7	13	3	82
	8.7	6.5	4.4	5.1	6.1	4.1	6.3
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 8.36917 with 10 degrees of freedom: not significant

TABLE 4.73 Linkage services "gave me a favorable attitude toward something I might do differently" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	189	128	70	96	38	115	636
	48.3	41.3	53.4	47.1	62.3	58.4	49.1
Somewhat	102	90	31	63	12	43	341
	26.1	29.0	23.7	30.9	19.7	21.8	26.4
Very Much	100	92	30	45	11	39	317
	25.6	29.7	22.9	22.1	18.0	19.8	24.5
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 22.57211 with 10 degrees of freedom: probability = .01

TABLE 4.74 Linkage services "gave me a favorable attitude toward something I might do differently" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	128	162	123	72	113	38	636
	41.2	45.9	60.3	52.2	52.8	51.4	49.1
Somewhat	85	97	50	45	47	17	341
	27.3	27.5	24.5	32.6	22.0	23.0	26.4
Very Much	98	94	31	21	54	19	317
	31.5	26.6	15.2	15.2	25.2	25.7	24.5
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 34.39561 with 10 degrees of freedom: probability = .00

TABLE 4.75 Linkage services "helped me make a decision concerning a new educational practice" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	186	98	59	73	32	110	558
	47.6	31.6	45.0	35.8	52.5	55.8	43.1
Somewhat	107	84	34	62	15	37	339
	27.4	27.1	26.0	30.4	24.6	18.8	26.2
Very Much	98	128	38	69	14	50	397
	25.1	41.3	29.0	33.8	23.0	25.4	30.7
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 47.62518 with 10 degrees of freedom: probability = .00

TABLE 4.76 Linkage services "helped me make a decision concerning a new educational practice" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	122	138	111	57	91	39	558
	39.2	39.1	54.4	41.3	42.5	52.7	43.1
Somewhat	90	98	49	41	46	15	339
	28.9	27.8	24.0	29.7	21.5	20.3	26.2
Very Much	99	117	44	40	77	20	397
	31.8	33.1	21.6	29.0	36.0	27.0	30.7
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 23.95496 with 10 degrees of freedom: probability = .00

TABLE 4.77 Linkage services "encouraged me to try a new educational practice" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	181	118	64	85	37	118	603
	46.3	38.1	48.9	41.7	60.7	59.9	46.6
Somewhat	101	87	30	52	13	32	315
	25.8	28.1	22.9	25.5	21.3	16.2	24.3
Very Much	109	105	37	67	11	47	376
	27.9	33.9	28.2	32.8	18.0	23.9	29.1
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 32.08578 with 10 degrees of freedom: probability = .00

TABLE 4.78 Linkage services "encouraged me to try a new educational practice" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	115	151	114	71	111	41	603
	37.0	42.8	55.9	51.4	51.9	55.4	46.6
Somewhat	89	84	47	37	40	18	315
	28.6	23.8	23.0	26.8	18.7	24.3	24.3
Very Much	107	118	43	30	63	15	376
	34.4	33.4	21.1	21.7	29.4	20.3	29.1
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 34.30630 with 10 degrees of freedom: probability = .00

TABLE 4.79 Linkage services "led me to adopt a new educational practice on a more or less permanent basis" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	221	156	77	111	44	134	743
	56.5	50.3	58.8	54.4	72.1	68.0	57.4
Somewhat	109	87	31	59	11	39	336
	27.9	28.1	23.7	28.9	18.0	19.8	26.0
Very Much	61	67	23	34	6	24	215
	15.6	21.6	17.6	16.7	9.8	12.2	16.6
Column	391	310	131	204	61	197	1294.
Total	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 24.67693 with 10 degrees of freedom: probability = .00

TABLE 4.80 Linkage services "led me to adopt a new educational practice on a more or less permanent basis" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec. Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	151	202	136	83	127	44	743
	48.6	57.2	66.7	60.1	59.3	59.5	57.4
Somewhat	94	87	47	38	52	18	336
	30.2	24.6	23.0	27.5	24.3	24.3	26.0
Very Much	66	64	21	17	35	12	215
	21.2	18.1	10.3	12.3	16.4	16.2	16.6
Column	311	353	204	138	214	74	1294
Total	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 22.10278 with 10 degrees of freedom: probability = .01

TABLE 4.81 Linkage services "enabled me to provide information or advice to others" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	134	69	23	38	12	47	323
	34.3	22.3	17.6	18.6	19.7	23.9	25.0
Somewhat	108	68	20	44	14	49	303
	27.6	21.9	15.3	21.6	23.0	24.9	23.4
Very Much	149	173	88	122	35	101	668
	38.1	55.8	67.2	59.8	57.4	51.3	51.6
Column	391	310	131	204	61	197	1294
Total	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 52.92502 with 10 degrees of freedom: probability = .00

TABLE 4.82 Linkage services "enabled me to provide information or advice to others" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	88	95	61	26	35	18	323
	28.3	26.9	29.9	18.8	16.4	24.3	25.0
Somewhat	86	81	40	35	39	22	303
	27.7	22.9	19.6	25.4	18.2	29.7	23.4
Very Much	137	177	103	77	140	34	668
	44.1	50.1	50.5	55.8	65.4	45.9	51.6
Column	311	353	204	138	214	74	1294
Total	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 32.45265 with 10 degrees of freedom: probability = .00

TABLE 4.83 Linkage services "introduced me to educators with similar problems" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	222	156	69	107	39	129	722
	56.8	50.3	52.7	52.5	63.9	65.5	55.8
Somewhat	113	103	37	57	11	37	358
	28.9	33.2	28.2	27.9	18.0	18.8	27.7
Very Much	56	51	25	40	11	31	214
	14.3	16.5	19.1	19.6	18.0	15.7	16.5
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 20.77080 with 10 degrees of freedom: probability = .02

TABLE 4.84 Linkage services "introduced me to educators with similar problems" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	160	189	134	78	119	42	722
	51.4	53.5	65.7	56.5	55.6	56.8	55.8
Somewhat	96	101	48	38	55	20	358
	30.9	28.6	23.5	27.5	25.7	27.0	27.7
Very Much	55	63	22	22	40	12	214
	17.7	17.8	10.8	15.9	18.7	16.2	16.5
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 13.14908 with 10 degrees of freedom: not significant

TABLE 4.85 Linkage services "enhanced the learning experiences of students I work with" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	174	181	74	116	50	137	732
	44.5	58.4	56.5	56.9	82.0	69.5	56.6
Somewhat	104	77	35	52	9	36	313
	26.6	24.8	26.7	25.5	14.8	18.3	24.2
Very Much	113	52	22	36	2	24	249
	28.9	16.8	16.8	17.6	3.3	12.2	19.2
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 63.43709 with 10 degrees of freedom: probability = .00

TABLE 4.86 Linkage services "enhanced the learning experiences of students I work with" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	141	185	113	95	150	48	732
	45.3	52.4	55.4	68.8	70.1	64.9	56.6
Somewhat	86	99	42	28	41	17	313
	27.7	28.0	20.6	20.3	19.2	23.0	24.2
Very Much	84	69	49	15	23	9	249
	27.0	19.5	24.0	10.9	10.7	12.2	19.2
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 54.68367 with 10 degrees of freedom: probability = .00

TABLE 4.87 Linkage services "enhanced other experiences of students I work with" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	240	199	85	128	50	148	850
	61.4	64.2	64.9	62.7	82.0	75.1	65.7
Somewhat	90	71	33	53	10	35	292
	23.0	22.9	25.2	26.0	16.4	17.8	22.6
Very Much	61	40	13	23	1	14	152
	15.6	12.9	9.9	11.3	1.6	7.1	11.7
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 25.79335 with 10 degrees of freedom: probability = .00

TABLE 4.88 Linkage services "enhanced other experiences of students I work with" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	175	229	143	99	153	51	850
	56.3	64.9	70.1	71.7	71.5	68.9	65.7
Somewhat	86	80	39	28	43	16	292
	27.7	22.7	19.1	20.3	20.1	21.6	22.6
Very Much	50	44	22	11	18	7	152
	16.1	12.5	10.8	8.0	8.4	9.5	11.7
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 21.70494 with 10 degrees of freedom: probability = .01

TABLE 4.89 Linkage services "were OK as far as they went but didn't really meet my needs" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	253	214	95	148	48	132	890
	64.7	69.0	72.5	72.5	78.7	67.0	68.8
Somewhat	107	87	31	44	9	50	328
	27.4	28.1	23.7	21.6	14.8	25.4	25.3
Very Much	31	9	5	12	4	15	76
	7.9	2.9	3.8	5.9	6.6	7.6	5.9
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 17.59877 with 10 degrees of freedom: probability = .06

TABLE 4.90 Linkage services "were OK as far as they went but didn't really meet my needs" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	202	249	138	98	153	50	890
	65.0	70.5	67.6	71.0	71.5	67.6	68.8
Somewhat	93	83	48	32	51	21	328
	29.9	23.5	23.5	23.2	23.8	28.4	25.3
Very Much	16	21	18	8	10	3	76
	5.1	5.9	8.8	5.8	4.7	4.1	5.9
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 9.45349 with 10 degrees of freedom: not significant

TABLE 4.91 Linkage services "proved to be less useful than they were represented to me" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	283	230	98	159	48	153	971
	72.4	74.2	74.8	77.9	78.7	77.7	75.0
Somewhat	78	71	28	32	7	30	246
	19.9	22.9	21.4	15.7	11.5	15.2	19.0
Very Much	30	9	5	13	6	14	77
	7.7	2.9	3.8	6.4	9.8	7.1	6.0
Column Total	391	310	131	204	61	197	1294
	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 18.28424 with 10 degrees of freedom: probability = .05

TABLE 4.92 Linkage services "proved to be less useful than they were represented to me" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	212	270	156	108	172	53	971
	68.2	76.5	76.5	78.3	80.4	71.6	75.0
Somewhat	75	67	29	23	35	17	246
	24.1	19.0	14.2	16.7	16.4	23.0	19.0
Very Much	24	16	19	7	7	4	77
	7.7	4.5	9.3	5.1	3.3	5.4	6.0
Column Total	311	353	204	138	214	74	1294
	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 21.26300 with 10 degrees of freedom: probability = .01

TABLE 4.93 Linkage services "proved to be unreliable or misleading" by respondent's position. (Percentages below number of responses; see Table 4.2 for column key)

	Teacher	Adm'str	Spec'st	Nonins.	Res'chr	Other	Row Total
Not Reported	319	258	108	172	53	169	1079
	81.6	83.2	82.4	84.3	86.9	85.8	83.4
Somewhat	68	49	20	27	7	24	195
	17.4	15.8	15.3	13.2	11.5	12.2	15.1
Very Much	4	3	3	5	1	4	20
	1.0	1.0	2.3	2.5	1.6	2.0	1.5
Column	391	310	131	204	61	197	1294
Total	30.2	24.0	10.1	15.8	4.7	15.2	100.0

Chi square = 7.21066 with 10 degrees of freedom: not significant

TABLE 4.94 Linkage services "proved to be unreliable or misleading" by respondent's affiliation. (Percentages below number of responses; see Table 4.2 for column key)

	Elem Sch	Sec Sch	College	LEA	SEA/FEA	Other	Row Total
Not Reported	246	302	174	117	179	61	1079
	79.1	85.6	85.3	84.8	83.6	82.4	83.4
Somewhat	59	48	25	20	32	11	195
	19.0	13.6	12.3	14.5	15.0	14.9	15.1
Very Much	6	3	5	1	3	2	20
	1.9	0.8	2.5	0.7	1.4	2.7	1.5
Column	311	353	204	138	214	74	1294
Total	24.0	27.3	15.8	10.7	16.5	5.7	100.0

Chi square = 9.52585 with 10 degrees of freedom: not significant

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